

The Analysts Journal

VOLUME 13 : NUMBER 4



AUGUST 1957

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More and more, General Telephone employs modern electronics to increase efficiency, keep costs down.

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It is only one example of the way ARNEL—the new Celanese carefree fiber—is changing the face of textiles.

And it is a tribute to Celanese continuing research.

Celanese® Arnel®

Lockheed Management answers your questions about:

Lockheed's Position in the Jet Airliner Field

1. Why isn't Lockheed building a jet-powered commercial airliner?

Lockheed *is* building one: the *prop-jet* ELECTRA, scheduled for first delivery in September, 1958. The *turbojet* pays off only where it operates efficiently—the fast, high-altitude, long-haul flights. The *prop-jet* is ideal for the high-density hop-skip-and-jump business of medium and short-haul flights. The two types are not competitive, but complementary.

2. Why is Lockheed building the Electra instead of a long-range turbojet airliner?

Two-thirds of passenger volume—and more in the immediate future—is in medium and short-range flights—a part of the business on which it has always been impossible for most airlines to make money. With deliberate intent, Lockheed and several leading airlines attacked this problem. Drawing upon its *prop-jet* experience as builder of the C-130 HERCULES—an experience unmatched in the U.S.—Lockheed designed the ELECTRA.

3. How does the Electra compare with latest models of piston-engine airliners?

Seat-cost-per-mile of the ELECTRA will be much lower. Compared to the latest piston-engine transports—Lockheed's included—the *prop-jet* ELECTRA will offer a 30% per-mile fuel saving. In ratio of payload to total weight, the ELECTRA tops *all* competitors, piston and jet. Passenger appeal will come from these ELECTRA facts: quieter, vibration-free ride;

larger seats; climate-controlled cabin; faster flights (60 m.p.h. faster than any airliner now in service).

4. Will the Electra be just an interim airliner or will it play a major role for years?

The *prop-jet* ELECTRA is not just a replacement aircraft. It is fundamental to the jet-age re-equipment cycle. To quote American Airlines' President C. R. Smith, the Lockheed ELECTRA is "designed to serve a growing and important part of air transportation, and I don't think there's any other airplane that will do that job as well." Orders for the ELECTRA should continue strong through the 1960's.

5. What airlines have bought the Electra?

Customers to date: American Airlines, Eastern Air Lines, Braniff International Airways, National Airlines, Western Air Lines and KLM-Royal Dutch Airlines. Orders to date: 133 planes valued at \$247,000,000.

6. Does Lockheed intend to build a commercial cargo version of the Electra?

At present the plans are indefinite—but Lockheed is studying a commercial cargo version of the ELECTRA's brawny brother, the *prop-jet* HERCULES. This is the C-130 combat cargo transport that has been in production two years at Lockheed's Georgia Division. The C-130 is now in service for the 18th Air Force and is being evaluated by the U. S. Marine Corps.

Powered by 4 Allison *prop-jet* engines, the

HERCULES develops 16,200 horsepower, possesses remarkable short take-off and swift rate-of-climb capabilities—enabling it to get into and out of the smallest commercial airports, anywhere in the world. The HERCULES cruises at 340 m.p.h., and its cavernous cargo compartment (9'4" x 10'3" x 41'5") can be quickly loaded via its tail-ramp door, which can be adjusted to truck-bed height or lowered to the ground to form a drive-up ramp for loading. These features, plus two years of proven reliability and low operating costs, should win for the commercial HERCULES as much favor with air cargo operators as the C-130 has won performing "feats of HERCULES" for the Air Force.

7. Does Lockheed intend to build a turbojet airliner? If so, when?

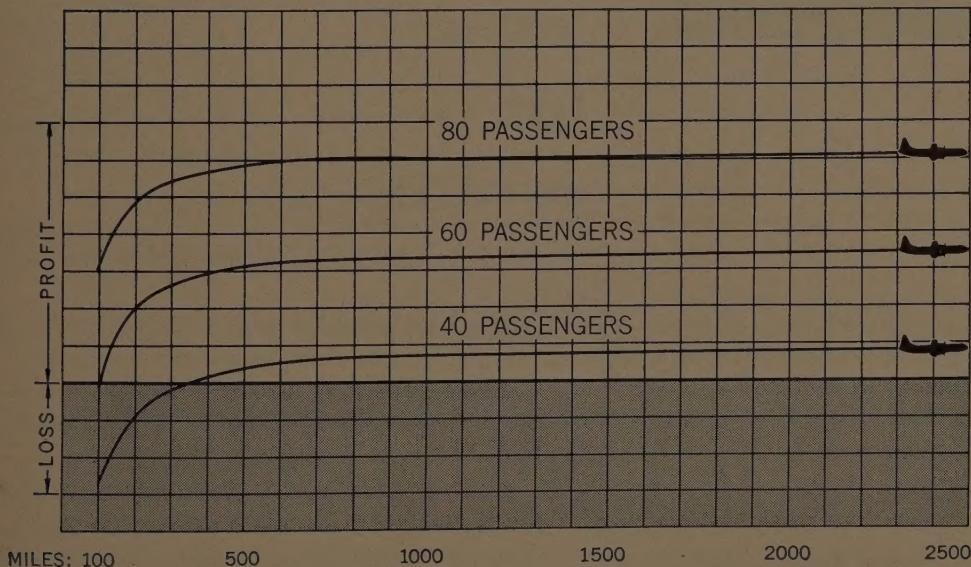
Lockheed is already building a pure-jet transport—a 4-engine utility jet transport/trainer with both military and commercial applica-

tions. Lockheed's airliner of the future probably will be supersonic to carry passengers across the world's oceans and continents at speeds beyond sound. When this plane flies is largely dependent on the development of new and more powerful engines.

Now, in the jet-powered field, Lockheed is busy building the Electra; the F-104 Starfighter (world's fastest jet fighter); the T2V-1 SeaStar jet trainer; the UC-X, new turbojet utility transport/trainer; the C-130 Hercules prop-jet combat cargo carrier; the turbojet U-2 (a new type of aircraft for very-high altitude research) and developing new radar early-warning planes for the Navy and Air Force.

Lockheed's policy of wide diversification into all types of aircraft and advanced missile development has resulted in a backlog of \$1,533,469,000—of which 51% is Air Force, 20% Navy, 29% Commercial.

LOCKHEED ELECTRA: Passenger Load Profit Analysis



The above chart illustrates the ELECTRA's profit-making capabilities on flights of 100 to 2500 miles—under three different load conditions: 40, 60 and 80 passengers.

LOCKHEED means leadership

One of a series of messages addressed to the financial community of America



**perfect
wrap
for
profits**

Proof? Demand for AVISCO® cellophane is so strong and growing so fast, that new facilities are being built to boost production 50%. This addition will bring total annual capacity up to 150,000,000 pounds.

Several factors are contributing to this overwhelming popularity of AVISCO cellophane. Besides the appeal of its crisp, sparkling transparency at the point of sale, and its superior protective qualities, cellophane is by far the best behaved of all packaging films on high-speed machinery. The trend is to automation in packaging as well as in other industries. Cellophane's smooth, slick surface, its freedom from static

and its heat sealability send it sailing deftly through even the most complicated automatic packaging operations. These advantages, plus its low cost, give packagers a better dollar value than any other packaging film.

Marketing horizons are broadening rapidly. Although the food and tobacco industries now consume about 85% of all cellophane production, this flexible material is finding increased use in packaging textiles, toys, hardware, pharmaceuticals and cosmetics.

We see a bright future for AVISCO cellophane and expect it to continue to contribute substantially to our sales and profits.

The Analysts Journal

AUGUST
1957

W. Sturgis Macomber

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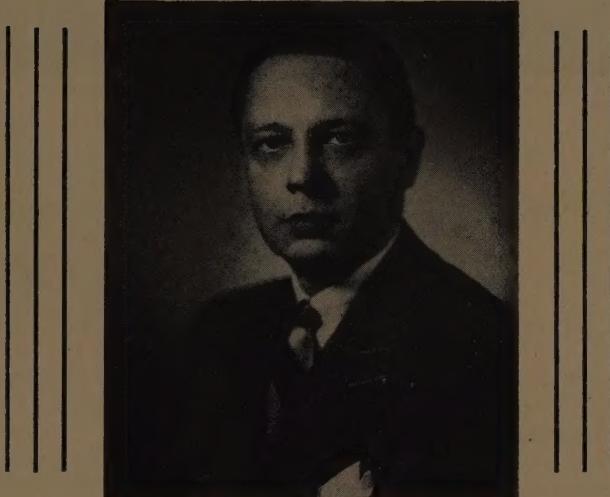
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NUMBER 4



The untimely death of W. Sturgis Macomber is a loss to the entire Federation of Financial Analysts Societies. His selfless devotion to furthering the status and growth of individuals and groups will ever be an example to those who follow in his footsteps.

Sturgis was vice president of the National Federation of Financial Analysts Societies and past president of the New York Society of Security Analysts. Under his guidance the New York Society advanced in membership and importance.

A man of great ability, high standards, and deep loyalties his role never became one of self aggrandizement but remained one of service and humility. He found a place in the hearts of all who knew him, for his being their friend made their paths happier. Memories of Sturgis will be filled with gratitude and love.

THE ANALYSTS JOURNAL is published five times a year, in February, May, June, August, and November, by The National Federation of Financial Analysts Societies, a nonprofit voluntary association devoted to the interests of those engaged in investment management and, more specifically, in the profession of security analysis. Publication office: National Federation of Financial Analysts Societies Headquarters, 444 Madison Avenue, New York 22, N. Y. Re-entered as second-class matter March 4, 1958, at the Post Office at New York, N. Y., under the Act of March 3, 1879.

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LUCIEN O. HOOPER



KENNARD WOODWORTH



PIERRE R. BRETEY



RICHARD W. LAMBOURNE

The National Federation of Financial Analysts Societies Is Ten Years Old

TEN YEARS AGO some farsighted members of the Boston, Providence, Philadelphia, and Chicago Analysts Societies were guests of representatives of the New York Society to discuss the possibility of "the formation of a confederation of security analysts societies throughout the country." This was accomplished on June 11, 1947.

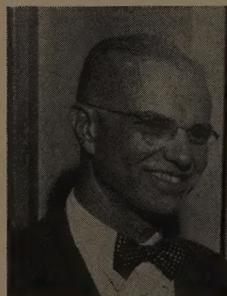
Since then the National Federation of Financial Analysts Societies has become a mature organization composed of societies in twenty-one cities. It serves many purposes. Now Analysts are recognized as a professional group. Their opinions are given consideration. That the Federation has attained distinction is in a large part the result of plans and efforts made by the presidents and their committees, which have given this "confederation"

a distinguished position in academic and financial groups.

Each year the annual Convention has brought greater information to those attending and every collection of talks represents a wider coverage. The Convention Issue of the Analysts Journal is sought by colleges, financiers, and economists. In addition to the conventions, the Federation sponsors the Beloit Seminars which foster thoughtful deliberation as well as the development of new ideas.

Thus in the short space of ten years the National Federation of Financial Analysts Societies has developed students of high standing. It is a feat worthy of pride of members and officers; one which shows great central strength and leadership.

H. S.



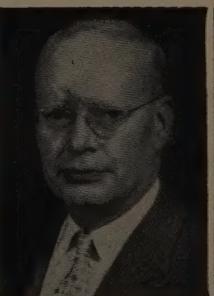
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General Mills



This New Symbol of Growth Circled the Globe in 56-57

General Mills' 29th year of expansion was marked by adoption of our new corporate symbol—appropriately suggested by a television screen.

During the year just past, it was reproduced millions of times to reach the eyes of consumers in more than 60 countries. You could find it on flour packages, for instance, from Des Moines to Genoa, from Spitzbergen to Hong Kong.

Many of the packages bearing this symbol contained products that also were new to the world. Betty Crocker Li'l Angel Food Cake Mix, Betty Crocker Macaroon and Chocolate Macaroon Mixes, Betty Crocker Cream Puff Mix were just a few. Even that stoutly entrenched favorite of 30 years—Wheaties—appeared in a new, modern, more delicious form.

Our new corporate symbol went up over the entrances of three new

companies—located, significantly, in three different countries. In October, 1956, General Mills purchased Ready-To-Bake Foods Inc., as a wholly-owned subsidiary headquartered in Los Angeles. Protex, S. A., of Mexico City was bought in January of this year. Formation of Habib-General Limited of Karachi, Pakistan, was announced in May, 1956; General Mills will own 60% of its stock.

These are only examples of the year's progress. For the complete story, you are invited to write for General Mills Annual Report. Address the Department of Public Relations, General Mills, Inc., Minneapolis 1, Minn.

An annual report, of course, is only a record of the immediate past. Finding new ways to make materials serve mankind is the key to the future. Led by research, General Mills moves confidently toward new horizons.

Fiscal Years Ended May 31

	1957	1956
Total Sales	\$527,701,677	\$516,052,804
Earnings	12,235,111	14,056,658
Dividends Declared	7,948,259	6,225,971
Earnings Reinvested	4,286,852	7,830,687
Net earnings— per dollar of sales	2.3¢	2.7¢
—per share of common stock	\$4.88	\$5.68
Taxes per share of common stock	8.16	9.00
Land, buildings, and equipment	85,531,908	72,602,048
Working capital	71,255,023	73,998,059
Stockholders' equity	136,100,981	131,456,892

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of Financial Analysts
Societies

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HERBERT B. WOODMAN has been president of Interchemical Corporation since 1947. He was awarded a Rhodes Scholarship while at the Harvard Law School. In 1930 he became associated with the law firm of Cravath, de Gersdorf, Swain and Wood. In 1936 he joined Interchemical.

In the opinion of the judges **RAYMOND GOLDSMITH** wrote the article most helpful to analysts during the year 1956. He was given the Alexander Award.

*Jeremy C. Jenks
Shelby Cullom Davis
Pierre R. Bretey.*

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An intrstng exprmnt in spch

How your words might be
compressed into "shorthand" sound
waves for telephone transmission

Any time we can speed your voice from telephone to telephone with less equipment you're bound to benefit.

One possible way to do this is by a new transmission method which Bell Telephone Laboratories scientists are exploring. You might call it "electronic shorthand."

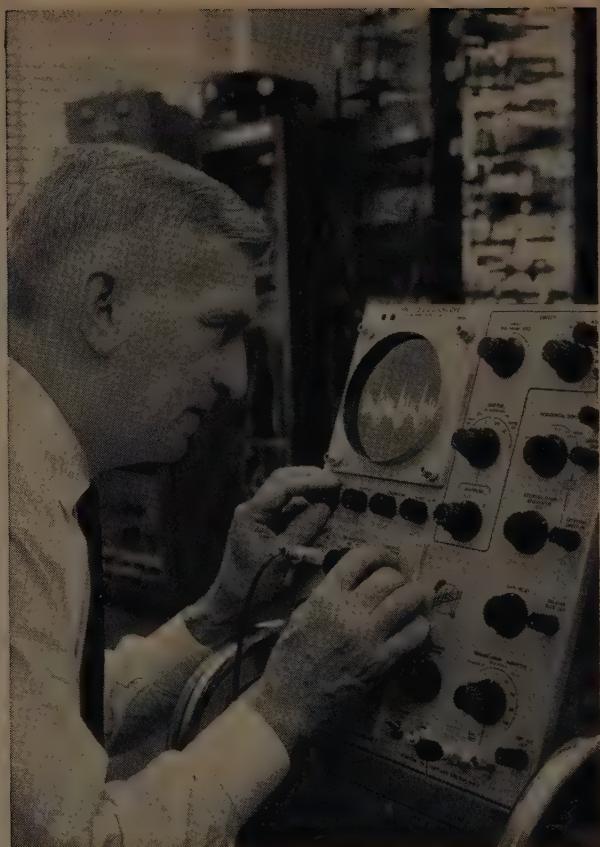
Actually, it's a method by which samples are snipped off a speech sound—just enough to identify it—and sent by telephone to a receiver that rebuilds the original sound.

The two charts on the right show how this can be done even with a short sound like "or."

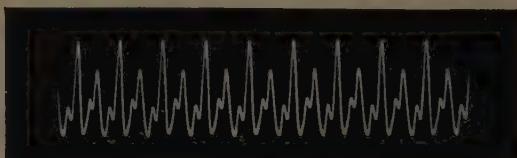
Our scientists are putting further research into this idea, which could mean not only improved service but a more economical use of lines as well. Voices could be sent by fewer electrical signals. And more voices could be sent over each wire.

It's exploring and developing like this that make telephone service the bargain it is.

Working together to bring people together
BELL TELEPHONE SYSTEM



YOUR EAR IS OUR CUSTOMER. Bell Laboratories scientist Homer W. Dudley, who originated the "electronic shorthand" method of sending speech, studies wave patterns made by sounds as you would ordinarily hear them over the telephone. To get these sounds from mouth to ear by telephone as quickly and efficiently as possible is our fundamental job.



THIS IS THE SOUND "OR." Chart shows how the oscilloscope records vibrations of the sound "or." Vibrations originate in puffs of air from the larynx when a word is spoken. Electronic machines don't really need all these vibrations to recognize the particular sound.



THIS IS ELECTRONIC SHORTHAND OF THE SOUND "OR." One "pitch period" in three (as against all nine shown in upper chart) has been selected for transmission. With this system, three times as many voices could theoretically travel over the same pair of wires and be rebuilt into the total original sounds.

Looking Behind Research Costs

NORMAN S. CASSEL AND HERBERT B. WOODMAN

RESEARCH IS THE FUNCTION of industry which deals with the future. Faraday once said, when asked by Mr. Gladstone what good would come of a new discovery in electrical science: "Why, Sir, there is every probability that you will some day be able to tax it." And although the security analyst is not directly concerned with a company's taxes, he is certainly concerned with its future ability to generate taxable income—and thus with the effectiveness of its research program.

According to the figures of the National Science Foundation Survey, approximately five billion dollars was spent in the United States on research and development in 1953. Four of the five billion was spent by industrial organizations; about two and a half billion of this four was supported by private industry, with the balance being paid by the Federal government. Equally comprehensive figures of more recent date do not seem to be available but we all know that the investment in research has expanded greatly since 1953.

COMPARATIVE STUDIES ARE DIFFICULT

An expenditure of this magnitude suggests the extent to which research has become an integral part of business and the importance of relating research programs to the basic aims and policies of the companies which support them. Each company's research must be studied in terms of its own self-defined interests, which makes it difficult to provide satisfactory statistical evaluations or comparisons. There are a number of directions in which comparative inquiries can be made, however, to provide significant information.

An investigation of a company's research expenditures should be based on an appreciation of two basic limits. The *minimum* research budget of any given company is essentially the level of effort which, if further reduced, will result in a perceptible loss of competitive position in a relatively short time. The *maximum limit*, on the other hand, is determined by an estimate of the point at which a company will find itself unable to digest the fruits of a larger, more costly program.

Between these two limits, there are extremely important questions as to the company's objectives:

(1) Is its purpose the protection of present earnings from existing products and processes? or

(2) Does it wish to reach beyond its present competitive position and establish a greater pre-eminence in its existing field? or

(3) Is the company hoping to find a new source of earnings through a broadened investment base, through entering one or more new fields? or

(4) Is the company's objective a mixture of two or all three of these and, if so, what is the relative importance to be attached to each?

An opinion of the appropriate size of a given research effort should be based upon the soundness of the answers to those questions.

In studying figures, the usual approach is to convert the amounts spent on research activities into percentages of sales. Another yardstick is the percentage relationship to profits—before taxes and before expense for research and development. Francis S. Williams of the Chemical Fund has recommended this comparison, stating this year that thirty-two companies in whose stock the Chemical Fund had invested averaged approximately 17%.

NON-STATISTICAL FACTORS

When making any statistical comparison, it is obviously important to bear in mind a number of non-statistical considerations:

(1) Different industries have widely divergent research requirements.

(2) Individual companies differ greatly in their definition of what constitutes "research"; some definitions are much more inclusive than others.

(3) Variations in research objectives between companies are of great importance, as are variations in their ability to utilize the fruits of research.

With regard to the first item, differences in research requirements among industries are fairly obvious. Based on the 1953 study, for instance, the average percent-of-sales figure in the aircraft industry was stated as being about 8.9, while in the chemical industry the corresponding figure was 2.5. In the food industry, on the other hand, an average as low as 0.2 has been published. There is obviously not the need or opportunity for research on a relatively stable product like flour that there is on a rapidly-evolving product like aircraft.

The second difficulty in comparing percentage figures is the lack of a common definition for the word research. A company such as Interchemical, for instance, will carry on a wide variety of technical activities in various laboratories: control work on raw materials, semi-finished and finished products; work on customer's application problems; development work to improve existing products and processes; research aimed at new products or radical changes in existing products; research and development work aimed at important changes in the processes or methods of application employed in the industries which are our customers; fundamental research to provide a better understanding of the chemical and physical phenomena which underlie the characteristics and performance of protective and decorative coatings. It is not easy to draw a clear-cut line as to what constitutes research and development. Control work and customer service obviously are not. Long-range and fundamental projects obviously are. In between is a large area where reasonable men can and do differ.

The third factor which we mentioned as having an important bearing on the statistical yardsticks was the company objectives behind the research effort and the company's ability to make effective use of the results of research. Upon hearing the word research, the layman very often calls to mind spectacular new products such as unique synthetic fiber or a new wonder drug. The number of major and radically new developments coming from a company's research organization is, of course, one measure of its effectiveness. On the other hand, the pursuit of such projects may be a warning signal. It might, for example, be the height of folly for a small company to direct research effort and developmental cost toward a new fiber. Success in this field requires the long-term investment of very sizeable funds, often at very considerable risk. The small company might well not be in a position to make effective use of the results of such research, however brilliant the work itself may have been.

MANY LITTLE-KNOWN PROJECTS

It is easy, on the other hand, for one viewing research activities from the outside to overlook the importance of the many corollary and relatively unknown research projects that are profitably to be undertaken by moderate-sized companies as the result of one of the larger and more dramatic developments made by others. As an example, consider the developments which have taken place in recent years in plastic films for use in packaging: cellophanes with many varied characteristics, cellulose acetates, vinylidenes, vinyls, polyethylenes, acrylics, polyesters, and many combinations of two or more of them.

The advent of these new packaging materials during these last decades of the "plastics revolution"—a revolution still in progress—has brought to the chemical coatings industry a variety of crucial technical problems. Each one requires the development of inks and coatings to meet the custom specifications of new packaging problems. To take a hypothetical example: Say that at the time polyethylene was first being developed, a soap company was concurrently developing a strong new detergent corrosive to standard metal containers. The new polyethylene was tested, let us say, and found suitable for the new product. Immediately, a new ink would be needed—an ink with two revolutionary specifications. Not only would it have to be resistant to the new detergent as it dripped over the side of the bottle, it would also need to meet the requirement of printing on a new plastic film—polyethylene. In this kind of business, then, there is need for a lot of the kind of research which consists of a behind-the-scenes succession of quiet new developments, rather than a spectacular series of new products that revolutionize the public life and enlarge the consumer's vocabulary.

ONE COMPANY'S PROGRAM

We might consider Interchemical's research and development program as a further illustration of the complexities of the comparative evaluation process. Interchemical is in the business of supplying chemical coatings to a wide cross-section of American industry. It maintains relatively decentralized divisions, each with the responsibility for a

particular group of products: printing inks, coatings for a great variety of manufactured articles, textile colorants, plastic-coated fabrics, carbon papers and inked ribbons, and pigment dispersions. Each of these operating units maintains technical facilities for control work, for customer service, for shorter-range development aimed at the improvement of the performance of its products, and for cooperative work with the Central Research Laboratories on longer-range developments.

Our Central Research Laboratories, on the other hand, are equipped to deal with problems which require a concerted effort over a relatively long period of time. A portion somewhat short of half the work of these laboratories concerns projects for product improvement. Examples taken at random from a very large number of such projects would be: a new type of finish for refrigerators which would greatly reduce the costs of application; coatings for the inside of metal containers which would permit their use for packaging liquids for which metal is not now satisfactory; new binders and new pigments for the printing of textiles; new coatings and inks for use with new foil and plastic combinations for the packaging of frozen foods.

The next largest portion of the time at our Central Research Laboratories is devoted to fundamental research in our fields of interests, often in cooperation with our divisional laboratories. These projects are not aimed at improving specific products, but rather at increasing the fundamental understanding of how our products work and why. Although lithographic printing is a century and a half old, there is still much that is not known about how the process operates. One of our projects is directed at achieving a better scientific understanding of the underlying physical and chemical phenomena. Another example might be our use of high-speed cinematography as a means of studying gravure printing. In still another project we are studying the mechanisms of catalysts for the curing of resin films. Since all coatings must adhere to a surface, we are carrying on a fundamental study of adhesion phenomena.

Finally we devote a definite portion of our research to new products which fall beyond the limits of our present commercial activity. In seeking advances for chemistry in general, and advances for Interchemical in particular, much free rein and encouragement must be given to every "new audacity of the imagination."

AN INTEGRATED TECHNICAL ATTACK

Our research program is, in effect, an integral part of an overall "technical attack." The nature of our business dictates a continuous progression from fundamental research; through divisional development laboratories; through carefully controlled, highly varied production; through to the customer's plant, rendering him technical assistance in the application of whatever chemical coating he uses.

The reason for this somewhat detailed description of Interchemical's research activity is simply to show the difficulty of establishing criteria for the evaluation of the research effort of a wide variety of industrial companies. There are few areas, we suspect, where it is more difficult for the security analyst to provide himself with the information on which a satisfactory evaluation can be made. It is

difficult enough for management responsible for any substantial research program to arrive at an evaluation of its own program.

In the somewhat unlikely event that the analyst finds himself with the time required to inquire further into the effectiveness of a given research effort, one of the revealing areas of inquiry might well be, how does the company "turn off" or change the direction of any given part of its research effort? How often, for instance, does the company undertake anything like a comprehensive review of its entire research program? Some companies do this at yearly intervals. Interchemical's research review, taking place every six months, is a discussion between management and the research team to decide not only what projects are to be stopped or decreased, but also what projects are to be expanded or altered. A review of some of the reasons for dropping a research program is interesting:

- (1) The market situation has changed.
- (2) The product in question cannot be made profitable in quantity.
- (3) The problem in question has been solved in a different way.
- (4) The project has been replaced or expanded by one or more other projects.
- (5) The project has been postponed because of the demands of more urgent projects.
- (6) A competitor has solved the problem first.

(7) The project has simply succeeded (obviously the one really satisfying reason).

ROLE OF RESEARCH IN PLANS AND DECISIONS

There are implicit in what we have been saying many other questions of a non-statistical nature which are relevant to the evaluation of a given company's research effort. Is the research effort efficiently organized? Is the long-range work adequately protected from the pressure of day to day problems? To what extent does the executive responsible for the research effort participate in the planning and decisions of top management? How sound are the decisions as to company objectives for research referred to earlier? How wise is the weighting as between long-term and short-term work? Most important of all, how effectively does the corporation capitalize on the results of the research program?

Questions such as these suggest the intangible nature of evaluations or comparisons of research programs. They point clearly to the importance of planning and management in the realm of research rather than simply matters of cost or size. Obviously this is no new problem for anyone accustomed to facing problems of corporate evaluation. The management function is a composite which includes many intangibles and imponderables defying statistical measurement. Behind research cost lie this same complex of problems relating to the evaluation of the intangibles of management. Thus may evaluations be facilitated.

* * *

"We have developed a habit of criticizing old formulations, of testing what our fathers accepted, of experimenting. We keep disregarding the good for the better, even when not under pressure. The result is a fairly steady rate of advance—advance so regular that we count upon it in laying plans for the future. Today we are sure that ten years hence our present scientific ideas and our present industrial machinery will be antiquated in good part."—*Wesley C. Mitchell*, 1918.

"Look beneath the surface; let not the several quality of a thing nor its worth escape thee."—*Marcus Aurelius*

Newport News Shipbuilding and Dry Dock Company

Profit and Loss Information for the six fiscal months ended June 24, 1957 and June 25, 1956

	Six Fiscal Months Ended	
	June 24, 1957	June 25, 1956
Gross income	\$81,635,167	\$49,970,349
Net operating profit	\$ 7,529,316	\$ 2,093,497
Deduct—Provision for taxes on income	4,000,000	1,100,000
Net profit before allowances	\$ 3,529,316	\$ 993,497
Deduct or (add)—Increase or (decrease) in allowances on long-term contracts for the period	425,000	(1,000,000)
Net profit	\$ 3,104,316	\$ 1,993,497

NOTES:

The above information is based largely upon estimates and is subject to year-end audit, adjustments and charges and is not necessarily indicative of the full year's results. The underlying contract estimates as at June 25, 1956 have since been revised, and those as at June 24, 1957 will be revised hereafter.

The Company's business consists largely of long-term ship construction, repair and conversion and hydraulic turbine and other construction contracts of large unit value, the performance of which may extend over periods as long as several years. A large part of the Company's business is with departments and agencies of the United States and the contracts therefor are subject to profit limitations and renegotiation to the extent that existing law and the contracts may provide and, generally, to termination at the convenience of the Government.

The Company records profits on its long-term shipbuilding contracts through estimates on the percentage-of-completion basis, and on its other long-term contracts as billings are made thereon. The profits so estimated and recorded are reduced by such allowances as may be considered advisable, taking into account the stage of completion of each contract, possible increases in costs not included in the estimates, guarantee liabilities, unsettled contract adjustments and other factors. The amounts reserved as allowances reflect the reductions in Federal and state income taxes which would result if the matters covered by the allowances materialize. To the extent that the matters for which the allowances were provided do not materialize, the allowances are included in income. If such matters materialize in amounts exceeding the allowances provided therefor, the excess will reduce income in the year in which such matters materialize. Federal and state income taxes must be paid for each year upon the profits as estimated and recorded without consideration of the allowances. Such allowances aggregated \$3,125,000 at June 24, 1957, \$2,700,000 at December 31, 1956, \$1,700,000 at June 25, 1956 and \$2,700,000 at December 31, 1955. The estimate for the six fiscal months ended June 25, 1956 reflects certain reclassifications to show the effect of the change in the allowances during the period.

Income from other contracts and orders is estimated and recorded as billings are made under the contracts or recorded upon completion of each contract.

Quarterly Statement of Billings, Estimated Unbilled Balance of Major Contracts and Number of Employees

	Six Fiscal Months Ended	
	June 24, 1957	June 25, 1956
Billings during the period:		
Shipbuilding contracts	\$50,256,430	\$39,212,665
Ship conversions and repairs	20,273,195	7,621,087
Hydraulic turbines and accessories	1,001,090	1,992,785
Other work and operations	8,672,639	5,202,644
Totals	\$80,203,354	\$54,029,181
	At June 24, 1957	At June 25, 1956
Estimated balance of major contracts unbilled at the close of the period	\$344,610,460	\$200,765,814
Equivalent number of employees, on a 40-hour basis, working during the last week of the period	12,874	11,646

The Company reports income from long-term shipbuilding contracts on the percentage-of-completion basis; such income for any period will therefore vary from the billings on the contracts.

By Order of the Board of Directors
R. I. FLETCHER, Financial Vice President

The Money Equation and Common Stock Investments

A. HAMILTON BOLTON

GENERALLY SPEAKING, the professional investment world seems to be divided into two camps: the fundamental camp and the technical camp. While it is perhaps an exaggeration to say that "never the twain shall meet," nevertheless it is true that most writers on the subject feel obliged to defend their greater love, be it the fundamental or the technical approach.

The fundamental approach is perhaps identified by the professionals who feel that the best method of investing is to search out value without too much effort spent on determining whether there is a favorable market climate. The technical man says in sum: the best value in the world is useless unless it operates in a favorable trend. The fundamentalist will say "what I want is a stock which on the known facts is obviously not only cheap in relation to other values, but also in relation to a study of value over a long period of years." Thus, other things being equal, a stock selling at 2 times earnings is cheap, and one selling at 100 times is dear, and in between are all sorts of shades of white to gray to black. The technical student says that while values may sometimes be important, they are quite relative. It matters little that a stock selling at 4 times earnings if within a year the technical climate is such that it may sell at 2 times.

The fundamentalist grudgingly admits that "timing" is somewhat beyond him, but if he buys "value" he cannot help but be skated onside, given time, and anyway "those chart-readers are not as good as they think." The technical student points to the fact that regardless of value, stocks still go up and down, and, true, he missed that last move of 50 or 100 points in the "averages" but in retrospect there were certainly ways of not missing it, and next time that sort of thing is not going to fool him again.

The good investor tends to use both approaches. If he is a fundamentalist at heart, he will nevertheless take a good look at what the stock has done. He will check his judgment of value against "the bloodless verdict of the market place." If the market place quite clearly says that he is wrong, he will go back and check his thesis. Then and only then will he take his position, or he may say "the unknown is far greater than the known; maybe there is some unknown factor which is mitigating against the success of my thesis; maybe I had better just simply watch awhile." If he is a good technical expert, he also will check his conclusions with the facts of value. Particularly he knows that in a late stage of a bull market, measured technical strength may be nothing more than a crowd-following which assists its own upward pattern but which also at a given moment creates a vacuum because there is nobody left to buy. (Perhaps the sharp drop in the steels in January 1957 may in retrospect be classed in this category, as were the liquor stocks in the summer of 1946).

So we have the two schools of thought, battling out the investment scene, each according to its own sense of rela-

tive values, each cognizant of its own weaknesses but neither ready to concede the over-all superiority of the other.

A THIRD FORCE: MONEY

In addition to these two schools there is one very important bridge which both (in the bare bones outlined above) have missed, and that is the Money Equation. The investment student is being forced more and more to look at the Money Equation. In this sense there is no doubt that the last year or so has been a transitional period. The role of monetary policy and action in formulating investment trends has been brought home to the analyst with great force. What happens when an "irresistible force" meets an "immovable object" has always been the first year physics teacher's method of emphasizing to students a great anomaly. Something like this has actually been happening with money: a too great demand for loan funds (credit) has been impinging on a limited supply. Result: explosion. Money and Credit have literally exploded, bringing with them a collapse in bond prices to the lowest levels in almost a generation as well as untold other financial problems, the results of which are but barely known at time of writing, including a stock market which has been down for the count of 9 several times in recent rounds since early 1956.

THE EQUATION IS AN AXIOM

Two plus two always equal four. And the Money Equation is just as axiomatic. If one takes all the things that money can buy, from copper to convertible bonds on the one side, and all the supply of money on the other, the two will balance by the price mechanism. If one increases the supply of money without in any way increasing the supply of all goods (including investments) and services, the price of something will be increased and what price is increased will all depend on what the money is used for, because, many impressions to the contrary, money is never "idle." It is always at work. One's money in a non-interest paying demand deposit is still at work—not for that depositor but for somebody else. It increases bank reserves, which reserves are always employed in some fashion or other to lend to other people, to invest in bonds, etc. Even idle cash in the bank till is money at work because it releases and disposes other funds at work in various other activities.

It may well be of course that the use of an increased supply of money will at different times work in different directions. In the 1920's for instance, the predominant use of money was in the stock market; in post World War II, in commodities and other tangible goods and services; and in the long drought of the 1930's and into the war, in bonds.

Further, no equation of exchange must overlook the question of rapidity of turnover of money, since money used more rapidly is effectively the same as a larger amount

of money. Thus the effective money supply is increased or decreased in accordance with the rapidity of its turnover.

Back in the days prior to the Great Depression, the Money Equation was taken with a great deal of seriousness. Economists recognized its validity and elaborate studies were made in the first quarter of this century to show how money, prices, and trade bore a very close relationship. It was Professor Irving Fisher who popularized the well-known Quantity Theory equation:

$$P \text{ (Prices)} = MV \text{ (Money x Velocity)} \\ T \text{ (Trade)}$$

Carl Snyder in his "Business Cycles and Business Measurements"¹ developed what he called a "Clearing Index of Business" covering the period 1875 to the middle 1920's wherein, after "deflating" clearings by the price level, and after various adjustments for seasonal and other variations, he showed an extremely close correlation with the trends of money of the major business series then available, including pig-iron production, and railroad freight traffic.

A further development of Carl Snyder's was a Velocity Index of Business. This after careful adjustment proved to have not so close a correlation with the known facts of production and distribution but nevertheless "it affords an interesting corroboration of our use of the Clearings Index as an index of business activity."²

Unfortunately, the depression of 1929-33 and the subsequent post-depression, the war and the early post-war period upset the delicate correlation of money turnover with business conditions, and it is only in the last year or two when, with a conscious attempt on the part of the Federal Reserve to keep a lid on the money supply, it appears again that the concept of the turnover of money as a motivating force is coming to the fore, as a talking point among analysts, with a consequent dusting off of certain "cart before horse" economic theories that suggest that all one has to do in a period of tight money is to increase its turnover and all will be well.

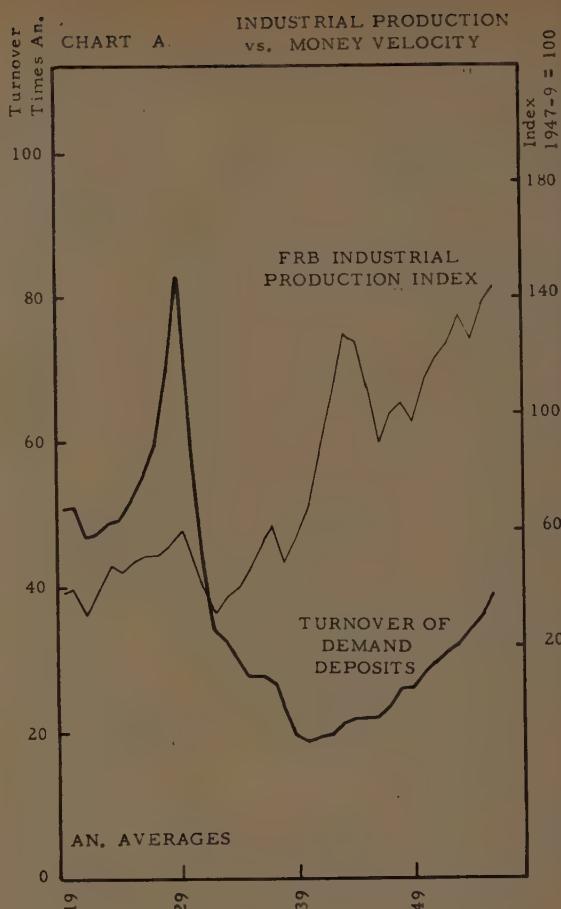
Part of this upset was undoubtedly due to the relinquishment of the Gold Standard in 1933.

In an interesting article in "Farm Economics"³ the authors show how in the period when the industrial world was on a full gold standard, the price level was determined primarily by four factors, the supply and demand for gold and the demand and supply of commodities. This relationship was broken up primarily in World War I when most nations left the full gold standard in favor of more limited gold exchange or gold bullion standards, but secondarily in 1933, when the United States also left the full gold standard. Since those times the relationships between gold production and prices have been almost coincidental. (The authors of the article in "Farm Economics" think that since the late 1940's the pre-World War I relationships are returning. After a generation of "chaos" prices are now in line again with gold supplies. We are not so sanguine

(1) MacMillan, 1927.

(2) Ibid. page 154.

(3) March 1957 Dept. of Agricultural Economics, Cornell University, Ithaca, N. Y. Article: "Gold and Prices" by Pearson, Meyers and Gans.



that the relationships existing today are not also coincidental, and that until at least the important nations return to a fixed gold reserve (which they do not have at present) and/or the United States' gold reserves (which are fixed) become closer to legal limits of currency and deposit expansion, we are unlikely to have gold production as a determining factor in the price level.)

It appears that the period of monetary stability prior to the great depression provided economists with ideal conditions to measure and prove the value of the Quantity Theory, but that conditions since that time have been less than favorable.

If then we assume that the international gold standard conditions prior to World War I enabled the leading economists to fix on and analyze the famous Quantity Theory of Money and that the lack of this standard has apparently completely upset the relationships spelled out by the famous economists noted above, does it not follow that it is useless to try to construct a workable formula which will again give validity to this famous set of symbols? We believe not, and propose to demonstrate how we have been able to reconcile the apparent conflict, and to demonstrate the track that should now be taken to assure the usefulness of the Money Equation, especially in its relation to the investor.

MONEY AS A MEASURE

Chart A shows clearly how far the turnover of money as a guide to business conditions has strayed from reality in the last 38 years. Here we show the annual rate of turnover of demand deposits, as measured by the calculation of the amount of bank debits (checks drawn on demand deposit accounts) in leading centers divided by the annual average amount of demand deposits, and compare it with the Federal Reserve Board Index of Production.

It is no small wonder that, come the 1930's, practical economists and investment men threw "money turnover" as an effective measure of business forces at work out of the window. The whole bag of theories of the monetary school were apparently exploded. They went into an eclipse from which, like the ground-hog in Spring, they are only now beginning groggily to return.

To continue the reasoning that has been developed, Chart B has been prepared. The author noticed many years ago that there was a direct relationship between the turnover of demand deposits and the trend of interest rates. Chart B graphs the same index of annual turnover used in Chart A and the rate of interest as shown by S & P's High Grade Corporates. It has remained for the post-war period to prove that this relationship was sound. Fast money turnover will produce higher interest rates.

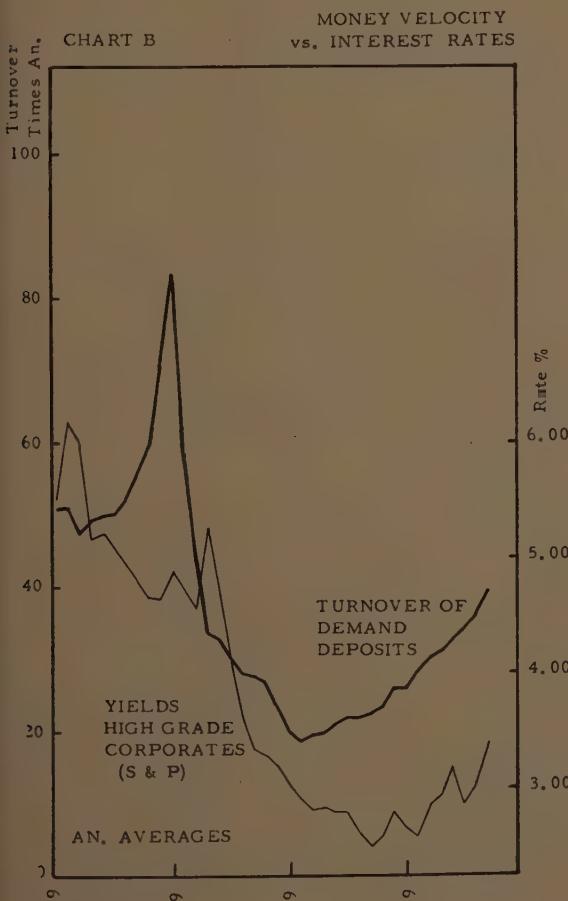
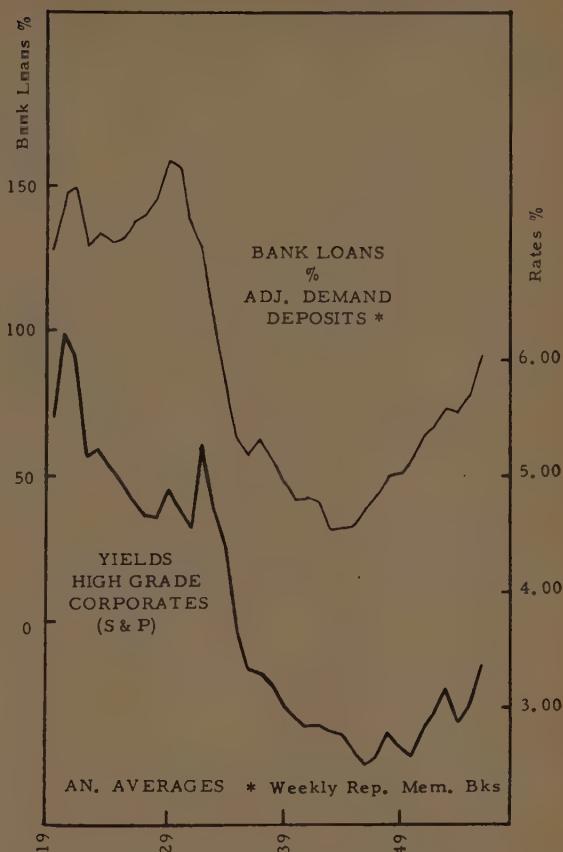


CHART C

INTEREST RATES vs. BANK LOANS



The author also has been aware of the fact that the trend of interest rates and the trend of the percentage of the money supply created by loans also bears a close relationship. Chart C shows the trend in these two items over the past 37 years, using weekly reporting member bank series of the Federal Reserve System.

This means in effect that we have three variables, all of which seem to be related in trends to each other:

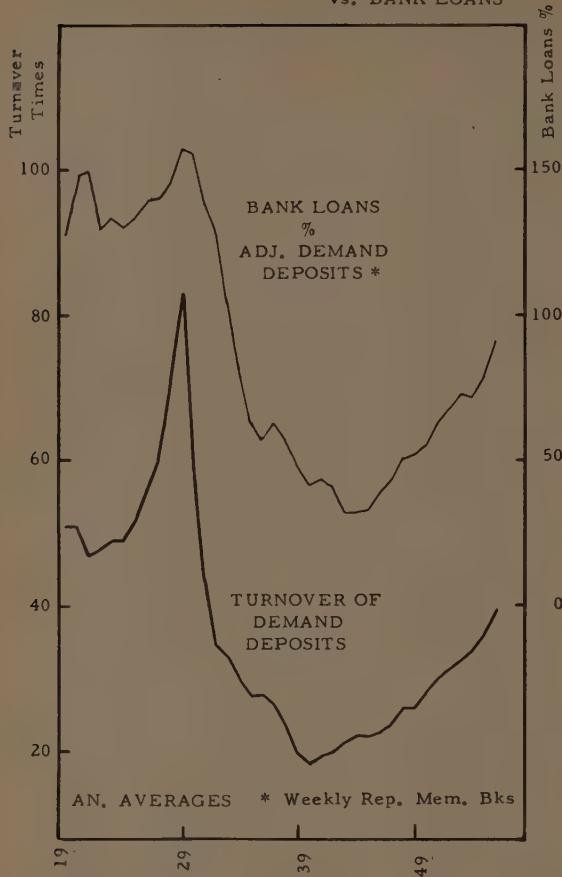
- (1) The rate of turnover of deposits.
- (2) The proportion of the Money Supply backed or created by bank loans.
- (3) The rate of interest.

Since interest rates are an effect rather than a cause, it is clear that the two remaining variables are the ones that require closer study. Thus Chart D isolates these two variables, which also shows the closeness of the relationship between the two. This is obviously a very close relationship.

THE LAW OF BORROWED MONEY

Let us consider money again. There are several laws which apply to money. Perhaps the most famous is Gresham's Law, which says simply that "bad" money drives "good" money out of circulation. However, a second law of money is less well known. It was perhaps first expounded

CHART D

MONEY VELOCITY
vs. BANK LOANS

by the English writer Walter Bagehot in "Lombard Street," that classic of the money market published in the late years of the 19th century, when he stipulated that borrowed money turns over faster than other types of money. Going a little further than Bagehot, we paraphrase this second law of money as follows:

"The greater the amount of borrowed money in relation to the money supply, the faster will it be turned over, or passed around."

It is clear, of course, that money is only borrowed for a specific purpose, and this purpose will undoubtedly entail an almost immediate "passing-around" of money. Thus a dollar of deposits created by the banking system through an increase in the investment account of the banks will not normally turn over nearly as fast as a dollar of the same type of deposits (i.e., demand deposits) created by an extension of a loan.

What should be kept in mind about the "law of borrowed money" is that money borrowing tends to be the cause and more rapid turnover the effect rather than the contrary. Of course, the actions of both do tend to become cumulative and mutually sustaining, but this is essentially a human characteristic. First we have to "want" to borrow,

then we "borrow" and then we "spend" what we have borrowed. If we accept the proposition that the more we borrow the faster we turn money over, this suggests a very important field for research, which may be stated in the following questions:

(1) Can it be proven that there is a correlation? (This has already been answered in Chart D, where the correlation is quite obviously marked in the period surveyed.)

(2) Assuming the correlation, can we arrive at a "normal" relationship between the size of bank borrowings in relation to the money supply and the rapidity of turnover?

(3) Assuming this established, do the deviations from normal offer any useful index of the state of the economy, particularly from an investor's point of view.

Having in mind that which we wanted to set out to discover, the next question was the availability of statistics and their inclusiveness. In this connection the analyst is well served, there being better statistics available covering the banking system of the United States than of any other economic series. Fortunately also, statistics of reporting member banks of the Federal Reserve System are available on a weekly (in some cases) and monthly basis back to 1919, and are particularly current—therefore useful to the analyst who having determined their value now wants to use them for current or future projections.

Among the series that might be used by the analysts are the following:

(1) Money Payments (Bank Debits or checks cashed on demand deposit accounts) in leading centers of the United States, including New York.

(2) Money Payments in outside centers, excluding New York.

(3) New York Money Payments.

(4) Total bank loans in leading centers, in leading centers excluding New York and in New York.

(5) Commercial and industrial bank loans.

(6) Security loans.

(7) Other bank loans.

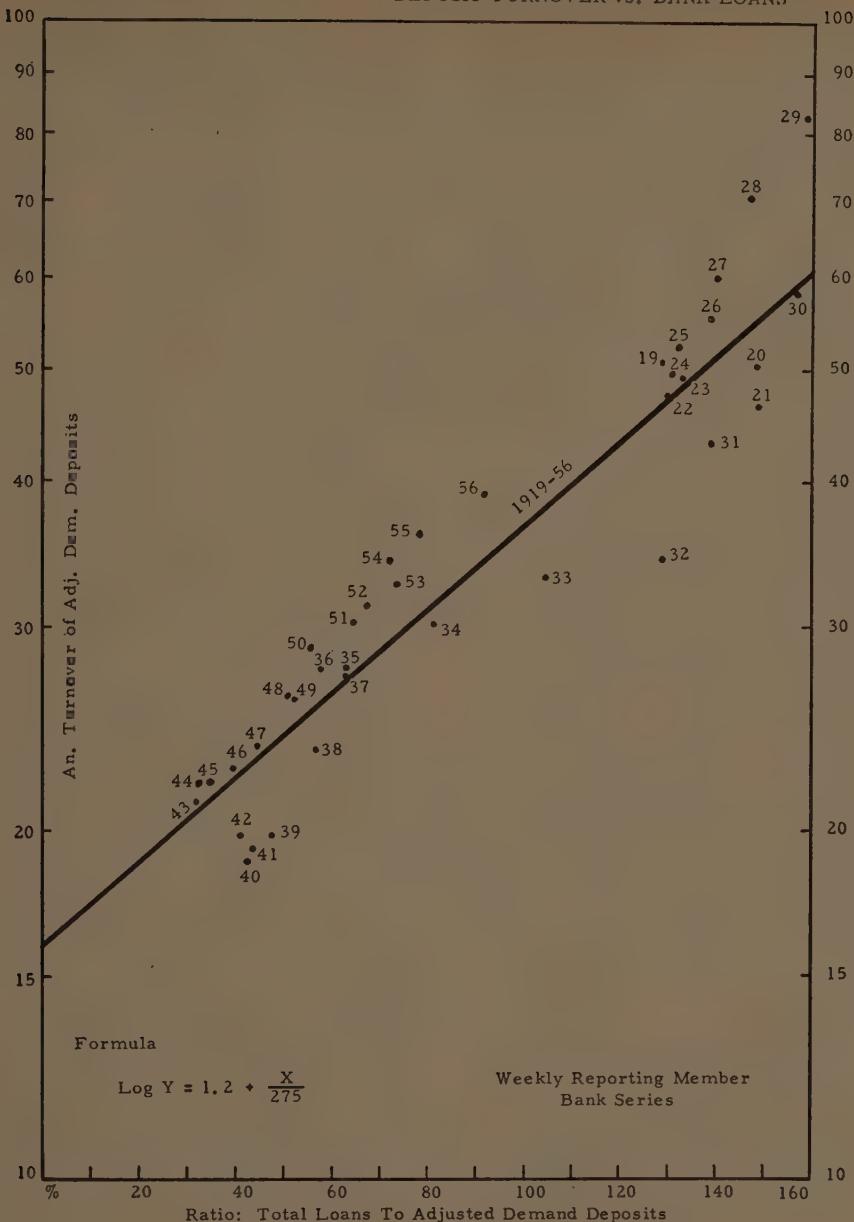
(8) Demand Deposits by areas.

(9) Time Deposits and Currency in hands of public, the latter considered by many a vital element in the country's money supply.

In selecting for this study the broadest possible series (a) bank debits in all leading centers, (b) total bank loans in all centers, and (c) adjusted demand deposits in all leading centers, your author had in mind a number of factors. First, money and credit are like water, they tend to flow in all directions. If one divides the money figures into too many compartments then any correlations there may be stand the chance of being temporary if conditions change. Secondly, a series, for instance, such as Commercial Loans and many of the other series have been the subject of a number of changes in reporting over the years. On the other hand, the series with the broadest coverage, as for instance total loans, have been changed the least. Each change requires a linking process of old to new data, and no matter what method of linking is used, one becomes doubtful that the whole series so linked really represents

CHART E

DEPOSIT TURNOVER vs. BANK LOANS



a continuous flow. This is not too important so far as trend is concerned, but it may be quite vital if we are comparing a level today with one twenty-five years ago.

FLOW OF MONEY

Finally, it was decided that the most valid comparison would be one that would encompass the widest swathe, it would allow for the inevitable flow of money to and fro, so characteristic of our credit economy wherein one day boom conditions are due to the stock market, and the next are due to an overwhelming consumer appetite fed by ample consumer credit.

Having selected our data in favor of the broadest coverage, let us look at Chart A. Here we see a very interesting thing. The major disagreement between the index of Industrial Production and the turnover of demand deposits stems from the period subsequent to 1930. Prior to this time the agreement between the two, as noted in our references to Carl Snyder's and others' work in this field, was sufficiently close. What new factor then entered the picture in the 1930's to change the tune?

A close examination of the banking condition statements back to beyond the Civil War in the United States showed an interesting fact. During all this time bank loans re-

CHART F

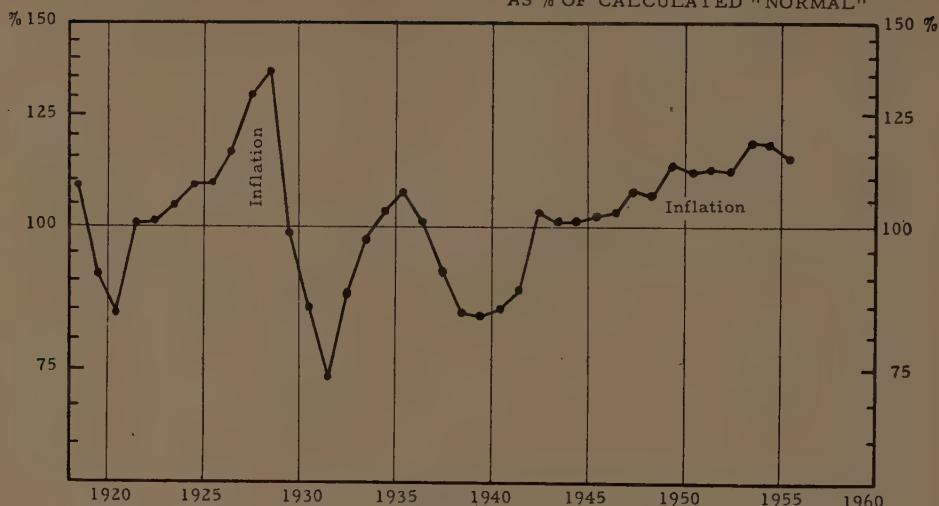
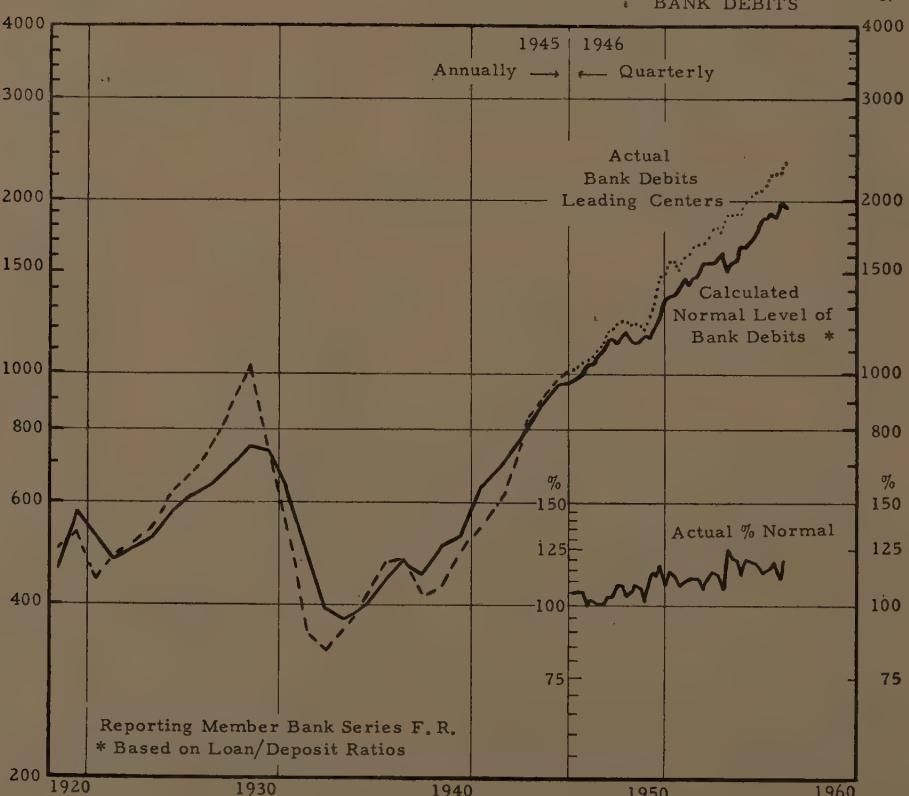
TURNOVER OF DEMAND DEPOSITS
AS % OF CALCULATED "NORMAL"

CHART G

ACTUAL vs. "NORMAL"
BANK DEBITS

mained a pretty constant percentage of bank deposits. This percentage fluctuated consistently around 60-75%. When the Great Depression came however, the percentage of bank loans to deposits shrank, and even to this date has not recovered to the levels of former years. Using "all bank" data, we find the following relationships since 1929:

Total Loans %
Total Deposits & Currency

Source: Federal Reserve Bulletin, April 1957, from data on page 428.

While this data is not the same as that used in Charts C and D, the trends of the two are similar. (The data used in Charts C and D and in subsequent charts is based on weekly reporting member bank series, and equates total loans to demand deposits adjusted, leaving out of consideration time deposits, government deposits, inter bank deposits, and currency outstanding. It is felt that this makes for a truer picture, in that each increase or decrease in loans automatically creates an increase or decrease in demand deposits, whereas loans do not have any such close relationship to other deposits or to currency outstanding).

What now of our theory that Chart D suggests? In order to explore that, it was decided to reassemble the data of (a) the average turnover of demand deposits and (b) the percentage that total bank loans are to demand deposits for the period 1919-56 into the form of a correlation chart. This is shown in Chart E. Along the X axis we set up the range of percentages of total loans to adjusted demand deposits. Along the Y axis we set up the annual rate of turnover of adjusted demand deposits; i.e. the number of times bank debits in leading centers were to the average monthly level of adjusted demand deposits. It will be noted that we used an arithmetic scale for the loan-deposit ratio, and a logarithmic scale for the deposit turnover figure. This was done purely on the basis of trial and error, it appearing after numerous alternatives had been tried that this produced the best "fit."

The line of correlation 1919-56—actually this same line was fitted in 1952, when work was first done on this study—was made by eye rather than by elaborate formula. The actual formula of the line as selected is shown by the equation:

$$\text{Log } Y = 1.2 + \frac{X}{275}$$

From this formula, for any value of X it is possible quickly to calculate the "normal" value of Y , or for any value of Y , a "normal" value of X .

Having established the correlation equation, the next question we ask ourselves is, Do the data seem to be in accord with facts? The answer is undoubtedly "yes." We see that boom years tend to bunch over the "normal" line, and that depression years are well below. In the whole period of 38 years there are no significant anomalies. We

find for instance that 1932 is the worst year of all in relation to normal, that 1935 is better than 1934, as is 1936 than 1935, that 1937 drops off, and that 1938, 1939 and 1940 are bad years with sharp improvement starting in 1942 and 1943. We find that unlike the depression or recession years of 1920-21, 1930-33, 1937-38, all the post World War II years are a continual stream above normal, and that up to 1957 at least there are no signs of those sharp drops that are seen in 1936-37, 1929-30, or 1919-20.

Plainly then this correlation chart seems to contain some rather significant economic information. In order to bring out the significance, in Chart F, we have again reassembled the data. This time showing a "normal" line, depending each year on the average relationship of total bank loans to adjusted demand deposits and the average calculated normal turnover of demand deposits as 100%, and showing actual average turnover ratios as a % above or below normal in time series from 1919. Those areas when actual turnover was considerably greater than the normal rate to be expected at the level of debt encountered, we have marked as periods of "Inflation." And so they prove to be.

Having now established (a) the correlation as a fact (b) a "normal" relationship between the level of bank debt and the turnover of active deposit money, and (c) deviations above and below normal which seem to make sense in the 38-year period on the basis of known economic facts, we now ask ourselves what good is the Money Equation so established?

It seems that it has a very considerable value. First, while all the data used so far has been in the form of annual averages, it is a very simple matter, given time, to work out monthly or quarterly figures. Thus a very useful up-to-the minute index should now be quite feasible. Secondly, there are several ways in which the figures can be analyzed to produce useful information. For instance there are of course 3 sets of data:

- (1) Total Bank Loans
- (2) Adjusted Demand Deposits
- (3) Total Bank Debits, Leading Centers.

The correlation is set up as follows:

Bank Loans	:	Bank Debits
Demand Deposits		Demand Deposits

Given any two, a "normal" value can be placed upon the third. For instance:

(1) With bank debits at such a level and demand deposits at another, what is the normal Bank Debit/Bank Loan ratio and how does it compare with actuality? Are Bank Loans too high or too low?

(2) From the present level of bank loans and demand deposits, are Money Payments adequate, are they high or too low, are they rising or falling?

In Chart G, as an example of what can be done, we have shown the actual trend of bank debits at annual rates, annually from 1919-45, and quarterly thereafter into 1957. (The last figure on the chart is for the first quarter of

1957). In addition we show the calculated "normal" level of bank debits based on Chart E and the loan/deposit ratio at any time. And in the box at the right hand lower corner of Chart G we show quarterly 1946-57 the percentage that actual has been to "normal" in the post-war period, again on a quarterly basis.

This chart is particularly useful in presenting the sweep of inflation in the last 40 years. Bank debits (money payments as shown by checks cashed) have been rising steadily since 1932 with few exceptions, the only serious one of which was 1937. This rate of ascent is roughly 8% per annum compounded semi-annually.

An examination of the chart in conjunction with Chart F shows that with the exception of 1929, this index has given advance warning of serious economic set-backs, in each case by a drop in the actual figure below the calculated normal. What this index showed in early 1920 and in late 1936 for instance was a definite inability of Money Payments to keep up with the required level established by the Money Equation—the necessary turnover for a given level of bank loans.

The exception 1929 is an interesting one, inasmuch as no real signal was given until the first quarter of 1930. The reason for this is the special characteristics of Money Turnover in the 1929 boom. Here we had a great preponderance of financial payments concerned mostly with stock market speculation. As can well be imagined, this type of boom is unique and creates a larger excess of monetary fluff than a boom dealing let us say primarily in real estate, or in commodities or in consumer hard goods. A glance again at the correlation chart (Chart E) indicates quite clearly that bank debits in the late 1920's were going through a cycle of their own which is probably not properly evaluated in the "normal" line based on the whole period 1919-57.

Nevertheless by the first quarter of 1930, bank debits were on their way below normal and did not come back to

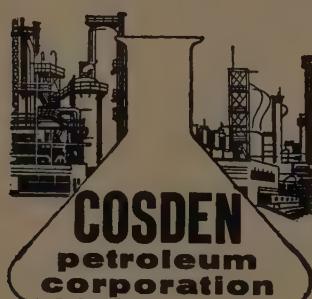
normal again until 1935, although they turned up sharply in 1932 at the very bottom of the stock market and the business depression.

The post-war period has been documented in greater detail by use of quarterly figures in Chart G. What this graph shows is that with the exception of 1946 and 1947, when the actual figures dropped back to normal there has been no case where the economy has so far been in serious danger. The period 1951, 1952 and 1953 was somewhat of a levelling-off process to be followed by sharp expansion in 1954 as loans dropped but money payments continued to increase. So far in the first quarter of 1957 there has been no decline which seems yet to indicate the end of the post-war boom.

Your author believes that these relationships throw considerable light on the well-known bank ratio—debits divided by loans—used by a number of analysts including your author, in that this latter ratio should always be interpreted not by any mathematical formula, but by some relationship which will throw both the moves of bank debits and bank loans and deposits into a proper perspective. The above Money Equation seems to fit this bill.

CONCLUSION

Much more could be written on the Money Equation as developed in these pages. A great deal of work remains to be done. The whole period should be thoroughly documented on a month-by-month basis, which of course is purely a mechanical chore. Notwithstanding this however this renascence of the Money Equation offers an interesting point of departure, in particular in a sound explanation of the great post World War II bull market cycle. It offers a rather simple reason for the fact that so far all business cycles in the post-war period have been particularly minor in impact, and it suggests the conclusion that they may continue to be relatively minor for at least some time to come.



DIVIDEND NOTICE

The Board of Directors has declared a regular quarterly dividend of 25¢ per share on the common stock of this Company, payable September 30, 1957, to stockholders of record at the close of business September 13, 1957.

R. L. TOLLETT,
President
Big Spring, Texas



Common and Preferred Dividend Notice

July 31, 1957

The Board of Directors of the Company has declared the following quarterly dividends, all payable on September 1, 1957, to stockholders of record at close of business, August 13, 1957:

Security	Amount per Share
Preferred Stock, 5.50% First Preferred Series	\$1.37 1/2
Preferred Stock, 5.85% Series	\$1.46 1/4
Preferred Stock, 5.00% Series	\$1.25
Preferred Stock, 4.75% Convertible Series	\$1.18 3/4
Preferred Stock, 4.50% Convertible Series	\$1.12 1/2
Preferred Stock, 5.75% Subordinate Convertible Series	\$1.43 3/4
Common Stock	\$0.35

W. J. Angerer
Secretary

TEXAS EASTERN  Transmission Corporation
SHREVEPORT, LOUISIANA



flexible

PRODUCT MIX keeps operating rate high

Members of the financial community frequently ask us, "What is your current product mix?" particularly during periods of changing steel demand. Product mix is important to the analyst, for it indicates the relative extent of a company's penetration into different steel consuming markets, and furnishes a guide to future operating and earnings prospects.

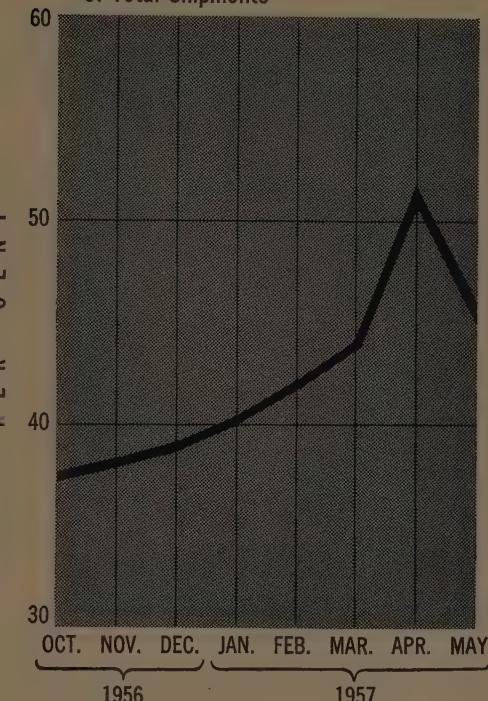
To J & L, product mix measures the success of our program of planned flexibility and diversification of production. It shows the result of management foresight in anticipating quickly changing patterns of demand. And it reflects to a degree the success of J & L policy of upgrading our products.

Product Mix	5 Months		
	1957	1956	1955
Hot rolled, cold rolled and coated sheets and strip	32%	36%	38%
Tubular products	17	17	17
Hot rolled and cold finished bars	14	15	15
Tim mill products	14	12	11
Plates and structural shapes	13	11	10
Wire products	4	4	4
Miscellaneous	6	5	5
	100%	100%	100%

The table above demonstrates J & L's flexibility in changing its product mix to emphasize those products in greatest demand.

Over the past few months particularly, J & L has shown a marked ability to step up its deliveries to meet heavy current demands for tubular prod-

Tubular Products, Plates, Structural
and Tin Mill Products as a Per Cent
of Total Shipments



ucts, plates, structural and tin mill products (see above chart).

Shipments of these products have been expanded from 38% of the total recorded in October, 1956 to 41% in January and 46% in May, 1957. As a result, J & L has been able to maintain an operating rate of 91% of its rated ingot capacity for the second quarter of 1957, despite the slackening demand for both hot and cold rolled sheet and strip.

Completion of our present plant program will bring further favorable changes in our product mix. It will permit our producing as much as 25% of our total shipments in tubular products. The recent substantial entry into the stainless steel field—as well as the proposed acquisition of Cold Metal Products Co., a producer of "restricted specification" cold rolled strip—will also increase J & L's ability to meet varying demand conditions in a broader market for its products.



Jones & Laughlin

STEEL CORPORATION • PITTSBURGH

J & L . . . A G R E A T N A M E I N S T E E L



DOMESTIC PLANTS AND DIVISIONS

FRIT & GLAZE DIVISION
Cleveland - Nashville
Los Angeles
Frits and Glazes

COLOR DIVISION
Cleveland
Inorganic Colorants

FERRO ENGINEERING DIV.*
Cleveland
Porcelain Enameling Furnaces, Plants

AGRICULTURAL FRIT DIV.
Cleveland
"FTE", Other Specialties

ALLIED ENGINEERING DIV.*
Cleveland
Ceramic Kilns, Dryers

CERAMIC SUPPLY CO.
Crooksville, Ohio
Saggers & Refractory Specialties

FIBER GLASS DIVISION
Nashville
Huntington Park, Calif.
Fiber Glass Reinforcements for Plastics

FERRO INTERNATIONAL DIV.
Cleveland
Export of Ferro Domestic Products

DOMESTIC SUBSIDIARIES

FERRO CHEMICAL CORP.
Bedford, Ohio
*Plastic Stabilizers,
Metallic Soaps, Driers*

TUTTLE & KIFT, INC.
Chicago, Ill.
Batavia, Ill.
*Electrical Heating Units
and Switches for Household
Appliances and Specialties*

THE LOUTHAN MFG., CO.
East Liverpool, Ohio
*Refractory Specialties for
Ceramic, Electrical, Electronics
and Foundry Fields*

FERRO POWDERED
METALS, DIV.
The Louthan Mfg. Company
Salem, Indiana
Powdered Metal Parts

THE PATTERSON FOUNDRY
& MACHINE CO.
East Liverpool, Ohio
*Process Equipment for the Chemical,
Food and Plastics Industries*

AMERICAN CLAY FORMING
COMPANY
Tyler, Texas
*Refractory Specialties for
Southern and West Coast Markets*

FOREIGN SUBSIDIARIES AND AFFILIATES

FERRO ENAMELS
(Australia) PTY. LTD.
Australia

FERRO ENAMEL S. A.
Argentina

FERRO ENAMEL S. A.
Brazil

FERRO ENAMELS (Can.) LTD.
Canada

FERRO ENAMELS LTD.
England

FERRO ENAMELS
(Holland) N. V.
Holland

FERRO ENAMEL
DE MEXICO, S. A.
Mexico

FERRO ENAMELS (Prop.) LTD.
South Africa

THE PATTERSON FOUNDRY
& MACHINE CO. (Can.) LTD.
Canada

AFFILIATES

FERRO ENAMEL DE
CHILE LTDA.
Chile

PROCEDES FERRO
France

FERRO ENAMELS (Japan) LTD.
Japan

*Engineering and Sales Offices Only

The Mechanics of Corporate Growth

ROBERT I. CUMMIN

DURING THE PAST THIRTY YEARS the professional investor has learned to search for growth stocks—stocks whose earnings over a long period increase faster than the average. He has learned that the investment value of these stocks is not determined alone by current yield but by the discounted value of future dividends and future selling price over the period of a valid forecast. Such a calculation can be expressed in terms of present capital value or in terms of expected investment return analogous to a bond's yield to maturity. Of course the future capital value, the future income, and the time factor of a stock all have to be guessed, in contrast to the fixed income, fixed redemption price, and fixed maturity of a bond.

Reaching accurate assumptions for these variables lies in the realm of art rather than science; however it should be possible to make projections that are at least reasonable and consistent with the observed facts. In this article are presented only the most important of the variables—the growth rate of the earnings of a stock and of the corporation behind it. Through analysis of the way in which a corporation grows, it is practicable to arrive at potential growth rates for the stock and for the enterprise. I propose to show the following:

- a. The overriding importance to growth of the rate of return on investment.
- b. The effect of capitalization and of dividend policy on growth potential.
- c. The effect of the market price of a stock on growth potential.
- d. The importance of research in the realization of growth potential.

Such an analysis furnishes a simple check on whether a forecast of future earnings and dividends is realistic, that is, whether a corporation has the capability of achieving what its management or the financial community expects of it. It also points out to management avenues that will help maximize growth.

This kind of analysis will provide a common ground for intelligent decisions by the men who manage growing companies, the investment bankers charged with raising capital for them, and the investment managers, whose job is appraising stocks.

CORPORATE GROWTH FROM INTERNAL SOURCES

A stock depends for its growth on the corporate enterprise behind it, so at this point the emphasis is on the corporation.

Once capacity operations have been reached, future growth depends on additional investment. Capital for this investment is either generated by the enterprise itself or must come from the outside. Industrial corporations themselves create the bulk of funds used in their expansion.

The ability to grow from internal sources is a function of:

- a. Addition to gross investment and
- b. earnings (or cash flow) resulting from the addition.

Gross investment includes total current assets and gross fixed assets. Depreciation reserves are excluded. A simpler investment figure, though less accurate, is merely net worth.

Return on gross investment is net income after taxes and necessary interest charges but before depreciation, depletion, and amortization. The simpler form of return, analogous to addition to net worth, is net earnings after taxes as reported.

The following examples show the relationship of earnings and dividends in their effect on growth, assuming new investment to yield the same return as existing investment. Depreciation reserves are net of retirements to show the effect on total investment.

Table I

	(Figures in Thousands of Dollars)			
	I.	II.	III.	IV.
A. Gross Investment	\$10,000	\$10,000	\$5,000	\$5,000
B. Net Income After Tax	800	800	800	800
C. Add: Depreciation, Depletion & Amortization Less Retirements	200	200	200	200
D. Gross Return on Gross Investment (B + C)	\$ 1,000	\$ 1,000	\$1,000	\$1,000
E. % of Gross Investment (D/A)	10%	10%	20%	20%
F. Less Dividend Paid Out	\$ 700	\$ 300	\$ 700	\$ 300
G. Net Cash Flow for Added Investment (D - F)	\$ 300	\$ 700	\$ 300	\$ 700
H. % of Gross Investment (G/A)	3%	7%	6%	14%

In practice there is no guarantee that the Net Cash Flow for Added Investment (G) will yield the same rate of return as the existing investment; it is, however, indicative of growth potential. The proportion of Net Cash Flow for Added Investment to Gross Investment (H) is an index of Growth Potential from internal sources and can easily be applied to specific companies.

Study of the above examples yields the following conclusions:

- a. Internal Growth Potential is a function of earnings on invested capital.
- b. Unless the rate of earnings on invested capital is high, the growth rate from internal sources can not be high.
- c. Internal growth potential is a function of dividend policy.

d. Unless a significant proportion of earnings is retained, the growth rate from internal sources can scarcely be high.

e. Therefore, a high return on investment and a significant proportion of retained earnings are both requirements of a company or stock with a high growth rate from internal sources.

A consistently high rate of return on investment is a most helpful criterion in distinguishing the true growth company from one that is merely expanding or experiencing better business. General Motors, which usually earns 20% on its investment and pays out half its earnings, obviously has far greater growth potential than a textile company earning perhaps 4%. The former is plainly justified in holding back earnings for profitable re-investment. The textile company, on the other hand, might as well pay out what it earns above what it needs to stay in business, since the dividend is probably worth more to the stockholder than it is to the corporation and in any event would not help the corporation's earnings much if it were retained.

The enterprise can also increase its capital investment by borrowing or by selling more equity. Borrowing within prudent limits makes it possible to increase the rate of return on the common stock equity, and if the ratio of debt to equity can be maintained, the growth potential or the dividend payout can be increased.

Public utilities, whose rate of return on investment is ordinarily limited to 6 or 7%, can leverage their capital structures and show a growth potential in excess of the over-all rate of return.

In the following examples one company has a 100% equity capitalization; the second has a capitalization half debt and half common stock.

Table II

	(Amounts in Thousands of Dollars)	
	Company I. (Equity Only)	Company II. (With Debt)
A. Net Invested Capital	\$10,000	\$10,000
B. Debt	\$	\$ 5,000
C. Common Stock Equity in Invested Capital (A - B)	\$10,000	\$ 5,000
D. Rate of Return on Invested Capital After Tax But Before Interest	6%	6%
E. Net Income After Tax But Before Interest (A \times D)	\$ 600	\$ 600
F. Less Interest at 4%	\$	\$ 200
G. Add Depreciation	\$ 300	\$ 300
H. Cash Flow (E - F + G)	\$ 900	\$ 700
I. Less Dividend at 4% of Book	\$ 400	\$ 200
J. Net Addition to Investment (H - I)	\$ 500	\$ 500
K. % of Investment (J/A)	5%	5%
L. % of Common Stock Equity (J/C)	5%	10%

Note that if borrowing is kept equal to common stock equity, the growth potential of the common stock equity is 10% in the case of Company II and so is the growth potential of the enterprise. No provision is made in cash flow for retirement of debt, as we are assuming a continuous expansion of equity and debt.

One may conclude that if an enterprise has a leveraged capital structure where the ratio of senior capital to equity

can be maintained and where the cost of senior capital is less than the over-all return:

a. The growth potential of the enterprise will be increased.

b. The growth potential of the enterprise equals the growth potential of the equity.

c. Where the over-all rate of return is limited, the cost of senior capital has exaggerated influence on equity earnings and growth potential.

The question of what effect the sale of additional equity has on the interest of the old stockholders is one on which there is a great deal of confusion. The problem arises more often with growth companies, which are characteristically short of capital, than with the more placid companies that make up the bulk of our productive economy. Sometimes sale of common stock is desirable only because it strengthens the capital structure, permits more borrowing, permits a higher dividend, or pays off a pressing debt. Since we are discussing growth companies, we will confine ourselves to whether or not earnings are diluted by the sale. More generally, raising new capital by sale of common stock benefits the original stockholders to the extent that it improves earnings or dividends of the original stock. Of course, the short run effect of such sale is often to increase the supply of stock faster than demand. And there is an inevitable period of dilution before the new capital can be put to work productively.

To illustrate: Three companies, showing various returns on net investment, each sell \$1,000,000 market value of new stock at ten times earnings; that is, earnings per share of old stock are in each case 10% of the net selling price of the new stock.

Table III

	COMPANY I.	COMPANY II.	COMPANY III.
A. Original Net Investment (000)	\$ 15,000	\$ 10,000	\$ 5,000
B. Original Net Income (000)	\$ 1,000	\$ 1,000	\$ 1,000
C. Return on Original Investment (B/A)	6.7%	10%	20%
D. Original Number of Shares of Stock	100,000	100,000	100,000
E. Original Net Per Share (B/D)	\$ 10	\$ 10	\$ 10
F. Original Net Investment Per Share (A/D)	\$ 150	\$ 100	\$ 50
G. Number of New Shares Sold	10,000	10,000	10,000
H. Proceeds Per Share (10 \times Earnings)	\$ 100	\$ 100	\$ 100
I. Amount of New Money Raised (000) (G \times H)	\$ 1,000	\$ 1,000	\$ 1,000
J. Expected Return on New Investment (Same as Original Return)	6.7%	10%	20%
K. Expected Added Income (000) (I \times J)	\$ 67	\$ 100	\$ 200
L. Expected Total Income (000) (B + K)	\$ 1,067	\$ 1,100	\$ 1,200
M. New Number of Shares (D + G)	110,000	110,000	110,000
N. Expected Net Per Share (L/M)	\$ 9.69	\$ 10.00	\$ 10.91

There is justification in the following conclusions:

- a. If stock can be sold at a price at which expected earnings on selling price equal expected return on the new investment, then the original stockholder will not experience dilution of his per-share earnings.
- b. If the expected return on the selling price is greater than the expected return on the new investment, then per-share earnings of the original stockholder will be diluted.
- c. If the expected return on the selling price is less than the expected return on the new investment, then per-share earnings of the original stockholder will be enhanced.
- d. The higher the price/earnings ratio at which new stock can be sold, the better for the original stockholder.
- e. The higher the anticipated return on new investment, the lower the price/earnings ratio at which new stock can be sold and still benefit the original stockholder.

Public sale of new equity capital often dislocates markets to the extent that investors are given an excellent buying opportunity. Even with a prospectus in hand it may not be possible to calculate precisely whether there is dilution or not. My rule is, "If selling price or subscription price of new equity exceeds book value, the new money will not dilute the original equity but will eventually enhance it—always assuming the new money is used as profitably as the old."

The accepted growth stocks that sell at the highest price/earnings ratios represent, by and large, ownership in the companies showing the highest return on new investment. Therefore these companies can raise equity capital more advantageously than others and thus grow even more.

Furthermore, the growth company, if its stock sells well above book, can grant options to its employees without diluting earnings. The growth company can issue new stock when the option is exercised; the company whose stock sells below book will have to use earnings after taxes to buy in outstanding stock to meet its obligation. The cost of thrift plans and profit-sharing plans involving company stock are similarly affected.

GROWTH FROM OUTSIDE SOURCES— MERGER AND ACQUISITION

Growth through merger or acquisition is comparable to growth through sale of equity, except where surplus funds are used for a cash purchase. If the company stock sells at a high ratio to earnings and asset value, it can be used to acquire stock or assets of less fortunate companies on a basis that may improve the position of the original stockholders. The acquisition may not necessarily contribute any growth after it is acquired, but buying earnings assets cheap is growth of a sort.

For example, Company "A" has net assets of \$10,000,000 and a stock selling for 20 times earnings of \$1,000,000 and twice net book value. It acquires the stock of Company "B", which sells for \$2,000,000, representing \$2,000,000 net assets and \$200,000 net earnings. Company "A" issues stock with a market value of \$2,000,000 to buy Company "B". Company "A" has increased earning power by 20%—but has increased the number of outstanding shares only 10%.

The Scott Paper Company, to name only one notable example, has a stock selling for about \$60 — 3.1 times book value and 21.6 times 1956 earnings. This company has been extraordinarily successful in acquiring paper properties on favorable terms through the issue of stock and then upgrading the acquisitions through integration. Some companies with a high stock valuation have made bargain acquisitions even when the new property could not be greatly upgraded.

A corollary observation is that a small company seeking merger with a larger one can probably get a better deal for itself from a company with a high-flying stock—unless, perhaps, it joins up with a tax-loss corporation.

REALIZING GROWTH POTENTIAL

The realization of growth depends upon positive action by management. This action comprises two main areas.

The first is providing fields of endeavor in which new capital can continually be put to work at a high rate of return. This in turn breaks down into a series of decisions on:

- a. Planning,
- b. Research and Development,
- c. Engineering,
- d. Manpower, and
- e. Merchandising.

No full treatment of these headings is planned here, since this is an analysis, not a manual. We shall, however, deal further with Research.

The second area is furnishing the needed capital in such a way that the enterprise and the stockholders are best served. This breaks down into decisions on:

- a. Capital Structure,
- b. Dividend Policy, and
- c. Public Relations—Investment Bankers, Stockholders, and Prospective Investors.

It is in this second area of decisions that the analysis of stock values and growth potential has its most positive application. We have already seen how capital structure, dividend policy, and methods of financing affect and are affected by potential and actual corporate growth. Furthermore, to insure that the market value of the company's stock fully reflects the growth in earnings, the investor must be kept informed.

The association of research with the growth company is fully recognized by investment analysts. High on their standard list of questions to management is information about the amount spent on research relative to sales. A program of research and development not only provides new products but may reduce costs on the more competitive older ones; the result is expanded markets and higher profit margins.

For analytical purposes research can be considered to be a form of investment. Like merchandising, it is an investment that is largely expensed for tax purposes rather than capitalized. Our seemingly high corporate tax rate, despite the hardships it places on corporate expansion,

means that the Government bears half the cost, provided there is taxable income to spend; research out of capital is no bargain.

Of course, spending money on research and development does not guarantee profits any more than does spending it on advertising or machinery. I know of no over-all figures on the effectiveness of research. However, the companies with the highest return on investment and the highest growth rate characteristically emphasize research. The chemical industry finds that a dollar of research will provide three to five dollars in highly profitable new investment. John A. Field, vice president of Carbide & Carbon Chemicals Company, the fast-growing petrochemical division of Union Carbide, stated last year* that in his company "for every dollar spent for research, development, and all other experimental costs, new sales of at least \$5.60 result after five years." In 1956 Union Carbide earned after taxes but before accelerated amortization 12.2% on sales. It seems safe to say that a program of research and development, well co-ordinated by management and directed into fields where the discovery rate is high, is a most attractive means of realizing growth of sales and earnings.

How much should the growing company spend on research? The answer is not here, but our analysis may help management find it. Considering research as a form of investment, the amount available for research and capital investment together is net income plus depreciation, depletion, and amortization. Without any research, there might be insufficient new projects to invest profitably the funds available. As research is stepped up, the number and profitability of the projects can be expected to increase

while the amount available for investment decreases, though because of the tax status of research expenditures, they rise more than investment funds decrease. After research has produced more than enough projects, the ones promising the highest return can be given priority. This is what happens in most large growth companies. It appears that the optimum research expenditure is one large enough to realize fully the company's growth potential in terms of new, profitable investment. In turn, the amount and effectiveness of research expenditures affect the growth potential through their influence on the over-all rate of return. Lack of manpower is an important limiting factor. It would be interesting to see what an operations research team could do with this technique.

Realization of growth potential has become easier in recent years. For one thing, managements are more scientific; planning and control techniques are more advanced, and the role of research and product development is more widely recognized. Secondly, growth of the economy has not been seriously interrupted by swings of the business cycle. Finally, Government policies have generally favored capital expansion, sometimes on purpose and sometimes by accident. We have already pointed out how the 52% corporate income tax has encouraged research expenditures and has underwritten half the risk of new investments. The 1954 changes in the handling of depreciation charges for tax purposes have also aided capital expansion. A high personal income tax rate makes dividend income less attractive than capital gain, so that a large group of stockholders acquiesce in a policy of low earnings payout.

Managerial requirements for realizing growth seem to be like those of successfully running a business. We may conclude that creation and maintenance of a growth company is management's highest achievement.

*New York Society of Security Analysts, Inc. 4th Eastern Regional Convention, November 8th, 1956.

DREWRY'S

A quarterly dividend of forty (40) cents per share for the third quarter of 1957 has been declared on the common stock, payable September 10, 1957 to stockholders of record at the close of business on August 23, 1957.

Drewrys Limited U. S. A., Inc.
South Bend, Indiana
T. E. JANNERET,
Secretary and Treasurer

A regular quarterly dividend

of 30c per share has been declared by Daystrom, Inc. Checks will be mailed August 15th to shareholders of record July 26th.

DAYSTROM, Inc.
Murray Hill, N. J.
Electrical and
electronic products
Modern furniture

RICHFIELD

dividend notice

The Board of Directors, at a meeting held July 9, 1957, declared a regular quarterly dividend of seventy-five cents per share on stock of this Corporation for the third quarter of the calendar year 1957, payable September 14, 1957 to stockholders of record at the close of business August 15, 1957.

Norman F. Simmonds, Secretary

RICHFIELD Oil Corporation

Executive Offices: 555 South Flower Street,
Los Angeles 17, California





PLASTICS

another multi-billion-dollar industry
served by **KOPPERS**

LAST year, plastics production set another new high when 3 billion pounds of synthetic resins and cellulosics went into plastics. In the next four years, production is expected to increase at least 14 per cent a year as uses for plastics continue to multiply.

In the home you may soon see entire translucent roofs, fluorescent ceilings, movable interior wall partitions, and even electric appliances made from plastics.

In supermarkets you are now buying tomatoes, ice cream, and cheese as well as many other foods, in low-cost disposable plastic containers.

The building industry now uses plastics for wall covering, flooring, glazing, paneling. Foamed plastics are used to insulate curtain walls and other types of "sandwich" panels. New jobs for plastics are found every day.

Use of plastics in housewares, toys, packaging, sporting goods, power and hand tools, and electric components continues to grow in variety and volume each year. Manufacturers of automobiles, refrigerators, and lighting fixtures are applying plastics more widely.

Koppers makes many plastics—rigid and flexible, for molding and extrusion, for films and monofilaments. DYLAN® and SUPER DYLAN® polyethylene, DURETHENE® polyethylene film, DYLINE®, EVENGLO® and FIBERTUFF® polystyrenes, and DYLITE® expandable polystyrene will be performing in many of these new applications.

Koppers Chemicals also will be contributing to growth in the uses of plastics. They are used in plastics production as antioxidants, light stabilizers, and plasticizers. Koppers Company, Inc., Pittsburgh 19, Pennsylvania.

Producers of tar products, chemicals, plastics, wood preserving materials, treated wood, metal products, and dyestuffs . . . designers and builders of steel mills, coke ovens, and chemical plants.



KOPPERS



WRIGHT A FLYER

Procured in 1909, this was the Army's first plane. It rose from a track, landed on skids. Top speed 44 MPH, ceiling 400 feet, 30 HP engine. Warping wing, two seater.



CURTISS HAWK P-6-E

These fighters were the first to be ordered in quantity. The P-6 series was flown from 1932 to World War II. Top speed 198 MPH, ceiling 25,800 ft., 600 HP engine. Could carry 250 lb. bomb load. Had a range of 460 miles.



CURTISS JN-4D

The famous "Jenny" trainer. Its name derived from a combination of J and N. Used by an estimated 95% of U. S. pilots trained during World War I. Top speed 73 MPH, ceiling 6500 ft., 90 HP engine.



DE HAVILLAND DH-4

The only American-produced battle plane to reach the front in World War I. Later converted for air mail after Post Office took over service. Top speed 125 MPH, ceiling 20,000 ft. Powered by famous 12 cylinder Liberty engine.



BOEING P-12D

This fighter was an outstanding aerobatic plane and was used by Air Force pilots in air shows during the thirties. Top speed 189 MPH, ceiling 27,900 ft., nine cylinders, 500 HP engine.



CURTISS P-40

This famous fighter did yeoman service for the Allied cause during the early days of World War II in both theaters of the war. Top speed 365 MPH, ceiling 36,800 ft., 1000 H.P.



NORTH AMERICAN P-51

Another, but later World War II plane was this low altitude fighter that bore the name of the "Mustang". 15,576 of them had been built when production ceased in 1946. Still in use by many foreign air forces. Top speed 437 MPH, ceiling 20,000 ft., 1490 HP.



LOCKHEED F-80A

The first U. S. jet fighter to be produced in large numbers. Called the "Shooting Star". Used extensively in Korea. Still in use by many Air Force training units. Top speed 594 MPH.



MCDONNELL F-101A

The "Voodoo", one of the latest U. S. military jets. A two-engine supersonic fighter. No performance figures have been released but has been credited with a speed in the region of 1300 MPH.

From 42½ to 1300+ mph

During the fabulous 50 years of the United States Air Force

AVIATION pioneer Orville Wright met government "endurance and speed requirements" by flying America's first military aircraft (above) for 72 minutes. Average speed, 42½ MPH. Today, just 50 years after the founding of what is now the United States Air Force, some of America's jets fly around the world non-stop. Others exceed speeds of 1300 MPH.

America's air arm, which was founded as part of the U. S. Army,

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Pioneering aviation progress is an all important activity of

Thompson Products. Thompson is proud to have played a part in the first 50 years of the United States Air Force. Thompson Products, Inc., General Offices, Cleveland 17, Ohio

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INDUSTRIAL AND ELECTRONIC PRODUCTS.
FACTORIES IN EIGHTEEN CITIES.

An Approach to Pricing Growth Stocks

ROBERT E. KENNEDY, JR.

ON THE BASIS OF CONVENTIONAL TECHNIQUES, investors are able to capitalize normal earnings and dividends with satisfactory results. Stable-income securities seem to submit to reasonably accurate analysis. For example, high-quality public utility common stocks may be appraised adequately in the light of present money market conditions, and the immediate outlook for capitalization rates.

The so-called growth stocks do not submit to such exacting analysis. Without the aid of formal techniques, investors as a class seem to evaluate unconsciously the exceptional earning power and prospective higher long-term yield of growth stocks, and then to capitalize this factor in current market prices. Is it possible that a technique may be formulated which puts the valuation of such stocks on a more demonstrable basis? Can one, on the basis of the past record, capitalize reasonably well the excess earning power of the growth factor in these securities? If so, then a practical basis for arriving at growth stock values becomes possible.

EXPLORING A NEW TECHNIQUE

This technique assumes the possibility of measuring at one time (a) the normal expected average investment yield on a high grade common stock, and (b) the average excess expected yield resulting from the growth factor; and then (c) it endeavors to capitalize the normal and excess average yield so as to justify the current market price of a growth stock.

The normal prospective yield from a high-quality, stable-income security, such as from the common stock of American Telephone and Telegraph, would be expected to approximate 5%. A growth security, such as the common stock of the Dow Chemical Company, can probably be expected to provide a higher annual average yield than 5%, if held for long-term investment. For example, the past record indicates that a long-term investment in Dow Chemical stock for the past 30-year period has returned an annual average yield, on investment cost, in the order of 17%. Accordingly, the excess average yield above the normal expected average yield has been 12%. If it is assumed that this experience will be repeated in the future, then by measuring the normal and excess yield at one time, it becomes possible to capitalize the yield results so that the reasonableness of the present price of Dow Chemical stock may be roughly ascertained.

TABLE OF CAPITALIZATION MULTIPLES

A schedule of yield capitalization multiples is presented in Table 1 as a possible guide to the current valuation of growth stocks for long-term holding. The table is developed largely from a study of the long-term past record of some twelve chemical stocks which, today, are widely regarded as growth stocks. The table is designed to indicate roughly

the maximum market prices that reasonably should be paid, in the current stock market, for growth stocks in order that satisfactory long-term average yield results, as related to investment cost, may be secured.

A basic assumption used in constructing the table is the expectation that the past average yield results of a given growth stock being appraised will be duplicated in the future. As such, the table has no utility apart from the long-term past record of a given growth stock to which it may be applied. It assumes that the growth factor, which has made possible the better-than-average yield results on investment cost in the past, will continue to exert a beneficial influence on the earnings of that growth stock into the long-term future. Therefore, any change in the basic assumption that the future will duplicate the past would call for a modification of the table.

ASSUMPTION BEHIND THE TABLE

Table 1 is based upon several other assumptions which need to be identified in order to suggest both the utility and the limitations of the proposed method of pricing growth securities.

Table 1

Capitalization Rates for Normal and Excess Annual Average Yields, Based on Past 30-Year Record, as a Guide to Minimum Purchase Yields Required Now to Attain Favorable Yield Results for the Next 30-Year Period

1 Annual Average Yield in Excess of Normal 5% (1)	2 Excess Yield Discounted to Present Value Excess Yield (3)	3 Rate for Capitalizing Discounted at 5% (2)	4 Price-Dividend Ratio: Excess plus Normal (4)	5 P/D Ratio Converted to Yield Basis (5)
1%	0.5%	2x	22x	4.54%
2	1.0	4	24	4.17
3	1.5	6	26	3.84
4	2.0	8	28	3.57
5	2.5	10	30	3.33
6	3.0	12	32	3.13
7	3.5	14	34	2.94
8	4.0	16	36	2.77
9	4.5	18	38	2.63
10	5.0	20	40	2.50
15	7.5	30	50	2.00
20	10.0	40	60	1.67

1. Annual average yield is based on calculations for the 30-year period (1926-55). Excess annual average yield is that portion above 5% of the annual average yield.

2. Excess annual average yield is discounted to present value by the use of the 5% average discount factor for the 30-year period, i.e., 0.5 or 50%.

3. Each 1% of the excess annual average yield is converted to a multiple of 4.

4. Each multiple in column 3 is combined with 20x to form a total capitalization multiple.

5. Each multiple in column 4 is divided into 100 in converting the price-dividend ratio to a yield basis.

(1) An annual average yield of 5% as to long-term investment return is assumed to be the minimum expected goal of conservative portfolio investment. This follows from the fact that a group of high-quality, stable-income securities can be purchased today which reasonably should be expected to yield an average of about 5% for a long-term commitment. Since income return is defined as the controlling objective of investment, then a commitment in growth stocks should, in due time, be expected to equal this yield expectation. The prospect of capital gain, although important in its own right, is not considered in this technique of valuing growth stocks.

(2) Investment for long-term holding is defined arbitrarily as a period of thirty years. During this period, all additional shares arising from stock splits, stock dividends, and from the exercise of stock rights, are held in the portfolio throughout the period.

(3) Annual average yield, as reflected in column 1 of Table 1, is computed for a growth stock, first, by relating each annual dividend to the investment cost of the security; second, by adding these annual yields into a summated value; and third, by dividing this total by the number of annual dividend periods, i.e., by 30.

(4) Excess annual average yield, as indicated also by column 1 of Table 1, represents that portion of the annual average yield which exceeds 5% for the period of holding. For example, if a growth security had exhibited an annual average yield on investment cost of 9% for the past 30-year period, then the "normal" and the "excess" yields amount to 5% and 4% respectively.

(5) As developed in column 2 of Table 1, the excess annual average yield (i.e., anything above 5%) is arbitrarily discounted to present value by the use of the average 5% discount factor of 1 for a 30-year period. This average discount factor is approximately 0.5, which thereby reduces the excess yield to about one-half of its former value.

(6) Present value theory is thus applied to the excess annual average yield on the assumption that a higher, overall degree of risk is associated with the long-run yield prospects of growth stocks than for stable-income securities of equal quality, which higher risk the discount factor tends to offset. Because of low current yields of growth stocks, there is the risk incident to "deferred income" in which a substantial period of ownership is required before the yield performance on investment cost can equal and overcome that of stable-income securities.¹

(7) Column 3 of Table 1 converts the discounted excess average yield into a capitalization multiple. Each 1% of the discounted excess average yield is equal to a multiple

1. For example, a growth stock which is purchased now on a 3% current yield basis, and which is believed to grow in dividends at a compounded growth rate of 5%, will require a period of continuous holding of about 23 years before an annual average yield of 5% on investment cost is obtained. The writer has developed a table in his Ph.D. dissertation which indicates the approximate number of years required to obtain an annual average yield of 5% from ownership of growth stocks, assuming various purchase yields and various rates of expected compound dividend growth.

of 4; which reflects the same multiple for each 1% of the normal average yield of 5%. The normal expected annual average yield of 5%, which is converted to a capitalization multiple of 20x, is then combined, in column 4 of Table 1, with the excess capitalization multiple to form a total capitalization multiple. The total multiplier, in turn, is converted back to a yield basis, as shown in column 5 of Table 1.

APPLYING THE TECHNIQUE

The values developed in Table 1 are now tested against concrete cases. Eight chemical stocks, usually identified by investment brokers as "growth situations," are tested as to the reasonableness of their market prices on December 31, 1956. These market prices are measured as being high or low in the light of providing an annual average yield on cost of about 5% to the investor who purchased these securities as of 12-31-1956 for long-term holding. The growth factor, as reflected in past yield performance, is assumed to make possible favorable yield results in the future.

The minimum purchase yields (i.e., maximum purchase prices) for the eight chemical stocks are summarized in Table 2. To illustrate the meaning of Table 2, let us consider the case of du Pont common stock. For the 30-year period (1926-55), du Pont has returned an annual average yield of 24% on investment cost to investors who have continuously held this stock since initial purchase in 1926. The compounded rate of dividend growth over this period was estimated at approximately 7%. If du Pont stock were bought at the end of 1956 to yield 3.37% on a current yield basis, and moreover, if the 7% rate of growth continued for the next thirty years, then the annual average yield is estimated roughly at approximately 13%.

The minimum purchase yield consistent with an expectation of securing, from du Pont stock, an annual average yield of 5% is estimated to be 1.72%. The actual yield at the end of 1956 was 3.37%, which was almost double the estimated minimum purchase yield. Consequently, it is in-

Table 2
Yield Capitalization Rates Applied to
Eight Chemical Stocks

1 Name of Company	2 Excess Annual Average Yield Above Normal 5% Yield Basis (1)	3 Minimum Purchase Yield as Per Table 1 (2)	4 Actual Purchase Yield on Market Price (3)
Du Pont	19.0%	1.72%	3.37%
Union Carbide	7.0	2.94	2.72
Dow Chemical	12.8	2.19	1.79
Eastman Kodak	1.7	4.27	3.02
Hercules Powder	11.7	2.27	2.29
Olin Mathieson	1.8	4.24	4.05
American Cyanamid	11.6	2.31	3.46
Allied Chemical	2.5	4.00	3.09
Average	8.5	2.99	2.97

1. Based on annual average yields computed for individual chemical stocks for the 30-year period (1926-55).

2. Purchase yields required as of 12-31-1956 in order to achieve the defined goal of conservative portfolio management.

3. Actual yields on market prices as of 12-31-1956.

ferred that du Pont stock at that market price is expected to exceed the minimal yield requirements of conservative portfolio management.

From the standpoint of pricing the eight chemical stocks, certain conclusions seem indicated from Table 2. Both du Pont and American Cyanamid appear to be considerably undervalued. Conversely, Allied Chemical and Eastman Kodak give evidence of being substantially overvalued. The remaining four chemical stocks are estimated to be

fully valued as to long-run yield prospects.

In judging the eight chemical stocks, not individually but as a group, Table 2 indicates a minimum purchase yield of 3.0% for the group. This coincides exactly with the current yield basis at the end of 1956. From this technique of pricing growth stocks, it follows that a portfolio consisting of these common stocks, if purchased at the end of 1956 as a group, is fully valued in terms of long-term growth of potential yield on investment cost.



**AIRCRAFT RADIO
CORPORATION**

Boonton, New Jersey

Dividend No. 98

On June 17, 1957, the Directors of Aircraft Radio Corporation declared a dividend of twenty cents (20c) per share on the common stock of the Company, payable August 15, 1957, to stockholders of record at the close of business August 1, 1957.

HERBERT M. KINGSLAND
Assistant Secretary

**BOSTON EDISON
COMPANY**

Preferred Dividend

A quarterly dividend of \$1.06 per share has been declared, payable on the first day of August 1957 to holders of record at the close of business on July 10, 1957 of the Company's Cumulative Preferred Stock, 4.25% Series.

Common Dividend No. 273

A quarterly dividend of 70 cents per share on the Common Stock of the Company has been declared, payable on the first day of August 1957 to stockholders of record at the close of business on July 10, 1957.

Checks will be mailed from Old Colony Trust Company, Boston.

ALBERT C. McMENIMEN
Treasurer

Boston, June 24, 1957

GOOD

Looking for Home Modernization Paper?

Our local manager will be glad to show you why more than 700 banks and financing companies are handling Holland installment loan paper on a non-recourse basis.

Here are some of the reasons:

- Holland is the world's largest installer of home heating equipment — the *only* furnace company that retails its equipment nationwide!
- Holland controls the end use of its products, because it maintains its own sales outlets.
- Holland *guarantees* heating comfort, and backs up that guarantee with performance!
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Find out about availability of Holland paper for *your* bank. Just give our local manager a phone call, and he'll be happy to discuss it with you.

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LIQUID MUSCLE FOR INDUSTRY

High on the list of American business achievement stands the swift efficient movement of millions of tons of material — made possible by an endless variety of automatic, time-and-labor saving machinery. Petroleum plays a vital role in this development. In the hydraulic cylinders of lift trucks, for example, move petroleum liquids that revolutionized the art of fast, cost-controlled distribution. Texaco scientists pioneered in creating these amazing hydraulic fluids which change pounds of pressure into tons of lift. The chemical sinews of these liquid muscles are the result of a partnership of research and industry in which Texaco scientists daily seek the new way, the better way.

THE TEXAS COMPANY

TEXACO

Progress...at your



service

Facts and Fiction Behind Price-Earnings Ratios of the Steel Stocks

LILLIAN B. GREEN

INVESTORS KNOW THAT the market places a low valuation on steel stocks in terms of price-earnings ratios. In 1956, steel stocks sold at a discount of 26 per cent compared with the average industrial stock, and at a considerably greater discount compared with the paper and chemical stocks.

Discount for Steel Stocks as Compared With:

Standard & Poor's Industrials	26%
Eight Paper Stocks	41%
Eight Chemical Stocks	57%

(Based on relative 1956 price-earnings ratios.)

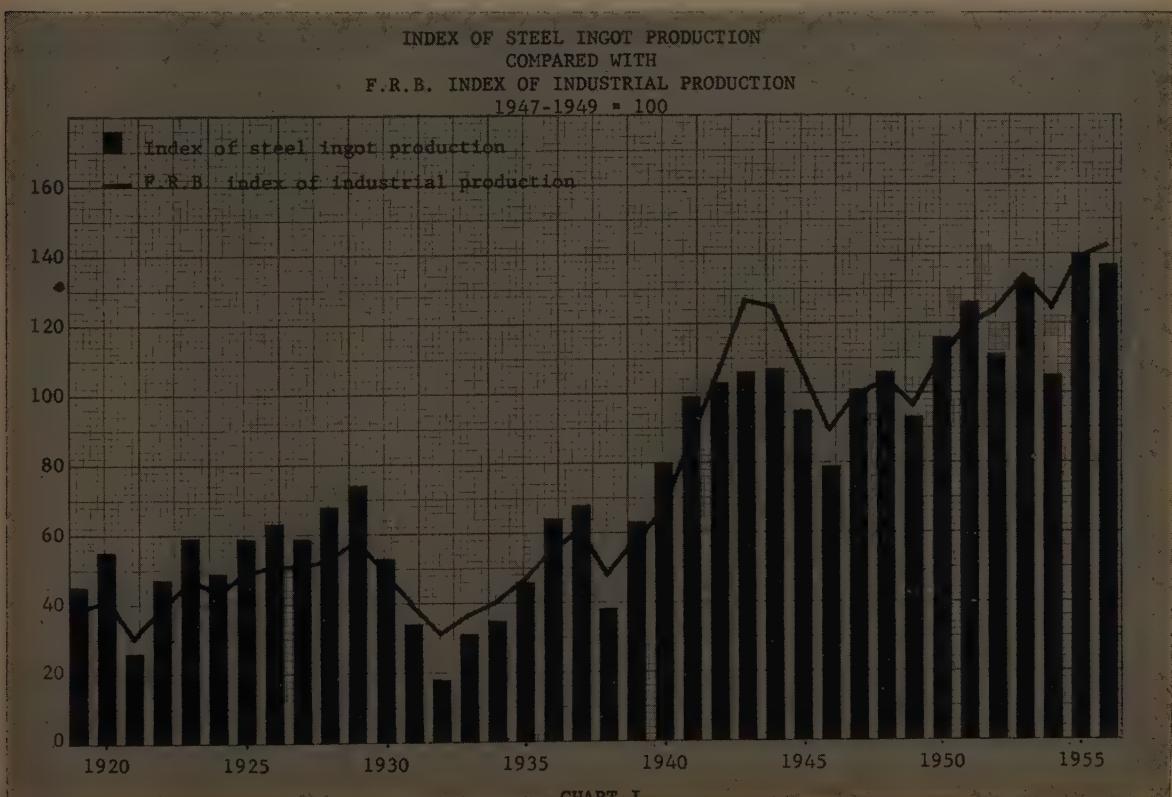
Behind this low market evaluation of steel stocks are opinions and assumptions about the character of the steel industry which need clarification. The purpose of this article is to examine the validity of some of these assumptions, separate the facts from the fiction, and bring into proper focus the present status of the industry.

What has been the history of the steel industry? Has there been a wide cyclical divergence between production

by the steel industry and production by the economy as a whole? Or does the industry's "highly cyclical" reputation reflect, not divergencies in production, but the historically sharp contraction in profits which used to occur when operations were low?

Chart I compares for the period 1919 through 1956, the Index of Steel Ingot Production with the F.R.B. Index of Industrial Production in terms of 1947-1949 = 100.

It can be seen that during the 11-year period 1919 through 1929, steel production followed a pattern of 3-year cycles, but so did the economy as a whole as measured by the F.R.B. Index of Industrial Production. The only exception was in 1927 when the F.R.B. Index remained unchanged from 1926, while steel production declined 6 per cent. It must also be noted that steel industry production for practically all of this 11-year period was at a relatively higher level than the economy as a whole; although when it contracted in the 1930's, the degree of decline was greater than for the economy as a whole. Why? The cliche that, as steel went, so did the economy, had founda-



tion in fact. However, we were then living in a predominantly capital goods economy, with surges of over-building followed by periods of catching-up, more or less falling into 3-year cyclical patterns. This became characteristic of the economy in the 1920's and 1930's, and was not peculiar to the steel industry only.

During World War II, steel production was limited by capacity. In the post-war period, the only years in which the steel industry declined and the economy as a whole did not were 1952 and 1956. The reason for this was the 54-day steel strike in 1952 and the 34-day steel strike in 1956. A more accurate comparison of production trends since World War II—to even out inventory ups and downs due to strikes—would come from averaging the years 1950 through 1952 as well as 1955 and 1956. If this were done, the similarity in trend between the F.R.B. Index of Industrial Production and Index of Steel Ingot Production would become quite apparent. Why, then, should steel stocks be evaluated any differently than the average industrial stock?

IMPORTANCE OF CONSUMER DURABLES

As new techniques and processes have been developed, the steel industry has become more diversified. Since the end of World War II, the steel industry has spent approximately \$8 billion on new plant and equipment, the greatest part of which has been for products closely identified with consumer goods rather than with capital goods.

Chart II clearly shows the steel industry transition from being a predominantly capital goods supplier, to a supplier of consumer goods manufacturers as well. The chart compares the Index of Steel Ingot Production with the F.R.B. Index of the Output of Consumer Goods, using two different base years since these are the only series available over the long-term. For the period 1919 through 1939, the year $1937 = 100$. For the period 1947 through 1956, the years $1947-1949 = 100$.

In the period 1919 through 1930, the Index of Steel Ingot Production averaged 12% higher than the Consumer Durable Index (showing the relative importance of capital goods in that period). For the period 1931 through 1939, as well as 1947 through 1956, the Index of Steel Ingot Production was almost identical with the Consumer Durable Index, reflecting two important changes: first, the increasing role of the consumer in the economy; and second, the concentration of new plant and equipment by the steel industry in those products primarily serving the consumer.

PRODUCT TRENDS

Steel products used in capital goods production are referred to as "heavy steel products" and consist of structural steel, plate, piling, pipe, bars and rails. Steel products used in consumer durable production (automobiles, refrigerators, tin cans, furniture, etc.) are referred to as "light steel products." These are the flat-rolled (other than plate) steel products and wire products.

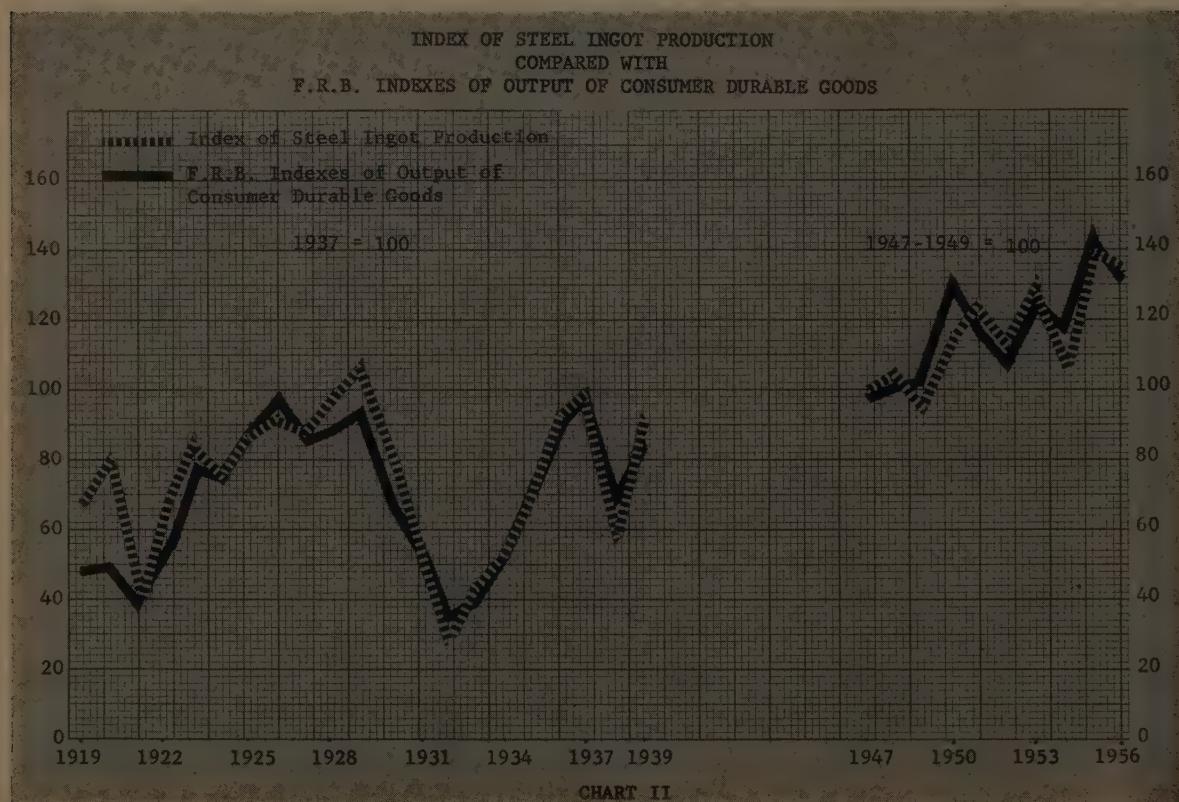
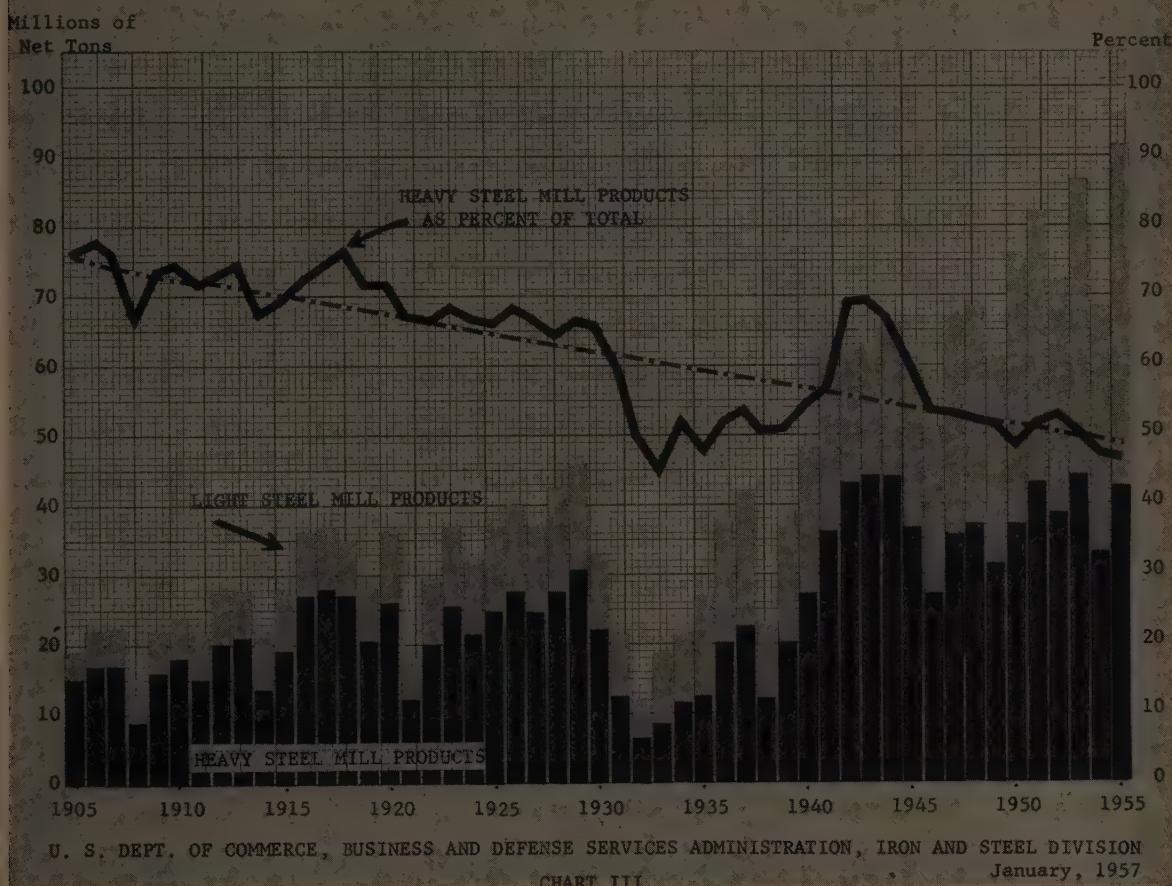


CHART II

COMPARISON OF HEAVY STEEL MILL PRODUCTS WITH LIGHT STEEL MILL PRODUCTS
TONS AND PERCENTAGE, 1905 - 1955



Further confirmation of the steel industry transition from a predominantly capital goods supplier to an important supplier of consumer goods as well, is a graph recently published by the U. S. Department of Commerce, Business and Defense Services Administration, Iron and Steel Division, and referred to as Chart III.

You will notice that heavy steel products (capital goods products) at one time accounted for approximately 80% of total steel production in this country. Since then, their share of total production has been declining at an average of slightly over .5% per year. In 1955, heavy steel products accounted for only 46% of total steel production. Conversely, light steel products (consumer durable products) have gone from approximately 20% of total steel production years ago to 54% in 1955. The figures for 1956 are not yet available, but there is no indication that the long-term trend has been reversed.

Thus, analysis of production trends and of changes in type of product both deny that the steel industry is much more cyclical than the economy as a whole. Why, then, should steel stocks be evaluated any differently than the average industrial stock?

PROFIT TRENDS

The steel industry has also been tagged as "cyclical" because of a supposed greater-than-average vulnerability of profits to declining operations. What are the facts?

Prior to World War II a sizeable decline in steel operations was usually accompanied by a sharp decline in steel prices. This meant that profits had to absorb the counter-leverage factor of heavy semi-fixed burden, with low volume and low prices. Today steel management seems determined to keep its prices in proper relation to costs.

The year 1954 may be cited as an example of what happened to steel prices in a fairly recent period of low operation. The steel industry operated at only 71% of capacity in that year—yet steel prices were increased to help offset higher costs. As a matter of fact, the recent behavior of industrial prices generally, in periods of declining operation, has been changing. Continued wage increases in excess of productivity increases, as well as other cost increases, have resulted in higher prices despite the historical relationship between prices and level of business activity.

For many years, too, the steel industry rate of profit

INDEX OF
NET INCOME AS PER CENT OF NET WORTH
1947-49 = 100
IRON & STEEL INDUSTRY VS TOTAL MANUFACTURING

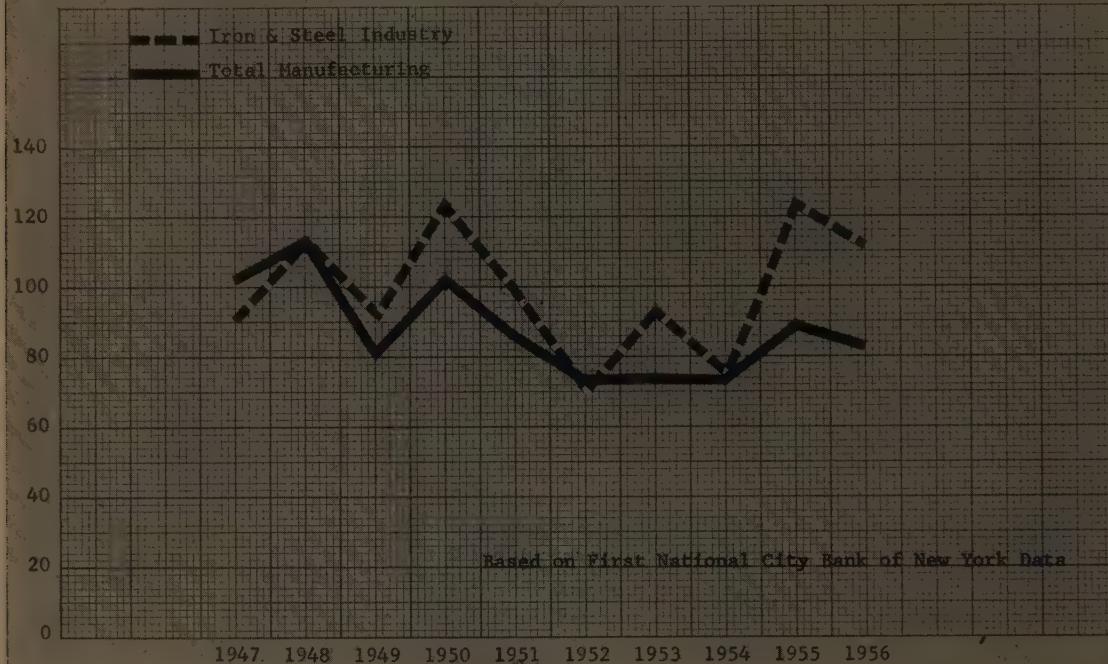


CHART IV

lagged that of the economy as a whole. That has also changed. Figures compiled by the First National City Bank of New York show that in 1955 net income of the iron and steel industry averaged 15.2 per cent on net worth, compared with an average of 14.9 per cent for all manufacturing industries. In 1956, despite the steel strike, the iron and steel industry earned 13.9 per cent on net worth, the same as for all manufacturing industries.

To really see how steel industry profits have caught up with the total of all manufacturing, we have computed an index in terms of 1947-1949 = 100 based on the First National City Bank of New York data on net income as per cent of net worth.

Note from Chart IV the declining trend for total manufacturing, which in terms of 1947-1949 = 100, had an earnings index of only 90 in 1955 and 84 in 1956. The earnings index for the iron and steel industry, on the other hand, was 124 in 1955 and 113 in 1956. Furthermore, for the last five years, the earnings index for the steel industry averaged 96 as compared with an average of 80 for total manufacturing.

Steel ingot capacity has increased 45% since the end of World War II and is being increased further. At the beginning of 1946, the steel ingot capacity of the country was 91,890,560 net tons. By January 1, 1957, steel ingot capacity had increased to 133,500,000 tons. When current expansion programs are completed at the end of 1958, the

projected capacity for the industry will be 145,000,000 ingot tons. Thus, for the first time since the end of World War II, the steel industry is being faced with excess capacity. This varies by products, but, nevertheless, the tight steel supply situation of the past several years is over for the time being.

What does this indicate in terms of profits? What can the industry earn at, for example, an 85% operating rate? In this connection, it is important to keep in mind that the billions of dollars which have been spent by the steel industry on new plant and equipment have not only increased capacity. They also have made possible increased efficiencies and lower operating costs which, combined with a realistic pricing policy, should help to stabilize profits.

The year 1956, due to the 34-day steel strike, provides an opportunity to gauge steel industry earning power at less than capacity rates. U. S. Steel, for example, operated at 85% of capacity in 1956, yet profits were the second highest in the history of the company with net income equal to 8.2% of sales and 13.3% on net worth. Some of the smaller steel companies also did well, and in no instance were current steel company dividends not earned by a wide margin.

Figures on expenditures for new plant and equipment show what the steel industry has done. For the four years 1954 through 1957 (with the latter estimated), only the automobile industry will have spent more than the steel

	EXPENDITURES FOR NEW PLANT & EQUIPMENT		
	FOUR YEARS - 1954-1957 (EST.)		
	MILLIONS OF DOLLARS	% OF DURABLES	% OF MANUFACTURING
Primary Iron and Steel	4,535	17.0	8.4
Primary Non-Ferrous	1,693	6.4	3.1
Electrical Machinery & Equipment	2,170	8.1	4.0
Machinery (Excluding Electrical)	3,975	14.9	7.4
Motor Vehicles & Equipment	5,414	20.3	10.1
Transportation Eqpt. (Excl. Motor Vehicles)	1,500	5.6	2.8
Stone, Clay & Glass Products	2,178	8.2	4.1
Other Durable Goods	5,182	19.5	9.6
Total Durable Goods Industry	26,648	100.0%	49.5%
Non-Durable Goods Industry	27,198		50.5%
Total Manufacturing	53,845		100.0%

Source: Department of Commerce, Office of Business Economics, and Securities and Exchange Commission

industry on new plant and equipment. For this period the steel industry will have spent \$4.5 billions—or 17% of total spending by the durable goods industries and 8% of total spending by all manufacturing.

HOW MUCH IS GROWTH WORTH

Part of the premium which the investor has been willing to pay for the paper stocks has been the appeal of a "growth industry"; and for the chemicals, this has been carried one step further for "research and new products."

But in the last analysis, the investor gains only if this growth factor is inherent and not a short-term phase, and if research and new products are ultimately converted into profits and not lost in the competitive struggle. Investigation of these two factors as it affects other than steel stocks is beyond the scope of this article, but it should not be overlooked by the analyst.

The steel industry, too, has its growth factor. It should be noted that per capita steel consumption has been increasing at the rate of approximately 2% per year in the

COMPARATIVE PRICE/EARNINGS RATIOS

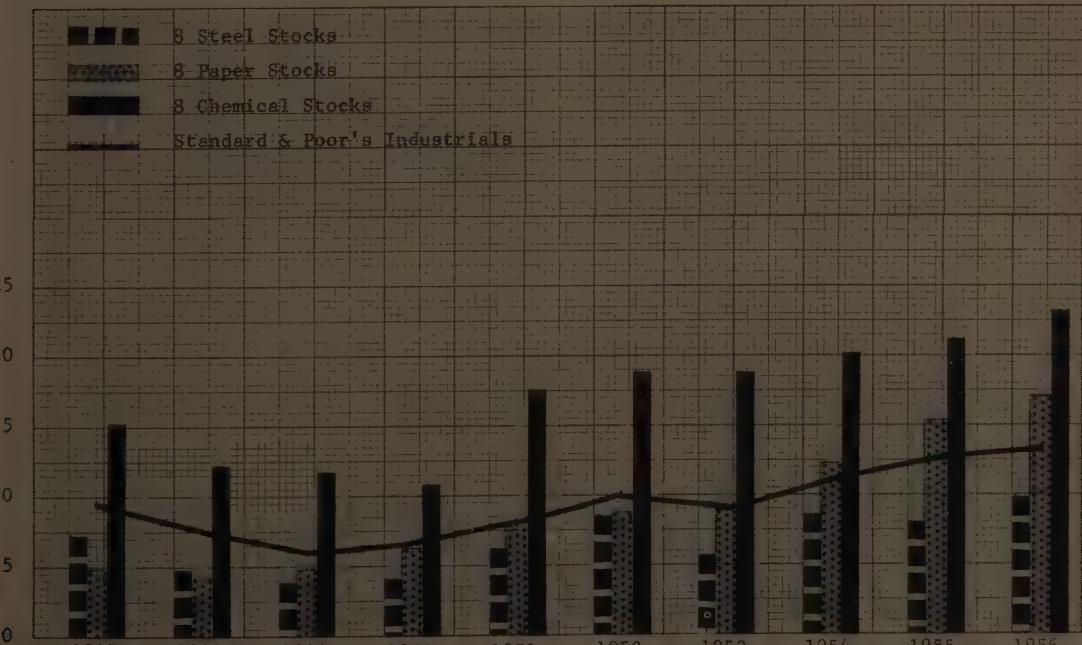


CHART V

INDEX OF STEEL INGOT PRODUCTION
COMPARED WITH
F.R.B. INDEX OF INDUSTRIAL PRODUCTION
1947-1949 = 100 1919 - 1956

	INDEX OF STEEL INGOT PRODUCTION	F.R.B. INDEX OF INDUSTRIAL PRODUCTION		INDEX OF STEEL INGOT PRODUCTION	F.R.B. INDEX OF INDUSTRIAL PRODUCTION
1919	45	39	1938	38	48
1920	55	41	1939	63	58
1921	26	31	1940	80	67
1922	47	39	1941	99	87
1923	59	47	1942	103	106
1924	49	44	1943	106	127
1925	59	49	1944	107	125
1926	63	51	1945	95	107
1927	59	51	1946	79	90
1928	68	53	1947	101	100
1929	74	59	1948	106	104
1930	53	49	1949	93	97
1931	34	40	1950	116	112
1932	18	31	1951	126	120
1933	31	37	1952	111	124
1934	35	40	1953	133	134
1935	46	47	1954	105	125
1936	64	56	1955	140	139
1937	68	61	1956	137	143

INDEX OF STEEL INGOT PRODUCTION
COMPARED WITH
F.R.B. INDEXES OF OUTPUT OF CONSUMER DURABLE GOODS

	INDEX OF STEEL INGOT PRODUCTION	F.R.B. INDEX OF OUTPUT OF CONSUMER DURABLE GOODS *		INDEX OF STEEL INGOT PRODUCTION	F.R.B. INDEX OF OUTPUT OF CONSUMER DURABLE GOODS
1919	67	49	1947	101	98
1920	82	50	1948	106	102
1921	38	37	1949	93	101
1922	69	57	1950	116	133
1923	87	79	1951	126	114
1924	73	74	1952	111	105
1925	88	90	1953	133	127
1926	93	99	1954	105	116
1927	87	84	1955	140	147
1928	100	90	1956	137	131
1929	109	95			
1930	79	66			
1931	51	52			
1932	27	33			
1933	45	38			
1934	52	54	* Source: This index computed by the F.R.B. from data in William Howard Shaw's "Value of Commodity Output Since 1869" published by N.B.E.R.		
1935	67	73			
1936	94	91			
1937	100	100			
1938	56	67			
1939	93	87			

INDEX OF NET INCOME AS PER CENT OF NET WORTH
1947-1949 = 100

	IRON AND STEEL INDUSTRY	TOTAL MANUFACTURING
1947	92	103
1948	114	114
1949	94	83
1950	125	103
1951	100	87
1952	72	74
1953	95	75
1954	77	75
1955	124	90
1956	113	84

Based on data published by the First National City Bank of New York

past ten years and is currently at approximately 1400 pounds. If projected increases in population are anywhere near correct, the steel industry will again be pushing capacity sometime in the next several years. By 1965, the steel industry should be short of capacity.

PRICE-EARNINGS RATIOS AND YIELDS

Investor revaluation of an industry is a slow-moving process and recognition of basic changes such as those in the steel industry may take years. Then, over-night, so to speak, new values are accepted.

Chart V compares the trend of price-earnings ratios for the eight largest steel companies with eight leading chemical and paper stocks, as well as with Standard & Poor's In-

dustrials. The price-earnings ratios for the individual groups have been computed and are based on weighted averages, with each component stock weighted as to the number of shares outstanding and the market value of the stock. For each year we have used an average of the high and low price related to the specific year's earnings.

It can be seen that in every year since 1947, the price-earnings ratios of the eight largest steel stocks fell short of the average industrial stock, as measured by Standard & Poor's Industrials. In 1947 and 1948, the eight steel stocks did sell at a better price-earnings ratio than the eight paper stocks. Starting with 1949, however, the paper stocks began a period of revaluation. Since 1954, their price-earnings ratios have been substantially above the market average.

COMPARATIVE PRICE/EARNINGS RATIOS

	8 STEEL STOCKS	8 PAPER STOCKS	8 CHEMICAL STOCKS	STANDARD & POORS INDUSTRIALS
1947	7.43	4.58	15.24	9.76
1948	4.80	4.18	12.36	7.66
1949	3.95	4.77	11.68	6.22
1950	4.17	6.29	10.97	6.74
1951	6.30	7.57	17.57	8.44
1952	8.56	8.74	18.92	10.41
1953	5.68	8.95	18.87	9.40
1954	8.83	12.30	20.16	11.40
1955	8.15	15.37	21.31	12.76
1956	9.97	17.01	23.35	13.47

Based on annual earnings and average prices

Companies included in above are as follows:

EIGHT STEEL COMPANIES

United States Steel Corp.
Bethlehem Steel Company
Republic Steel Corporation
Jones & Laughlin Steel Corp.
National Steel Corporation
Youngstown Sheet & Tube Co.
Armco Steel Corporation
Inland Steel Company

EIGHT PAPER COMPANIES

International Paper Company
Crown Zellerbach Corporation
St. Regis Paper Company
Container Corp. of America
Scott Paper Company
Kimberle-Clark Corporation
West Virginia Pulp & Paper Co.
Union Bag-Camp Paper Corp.

EIGHT CHEMICAL COMPANIES

Du Pont de Nemours & Company
Union Carbide & Carbon Corp.
Allied Chemical & Dye Corp.
Olin Mathison Chemical Co.
Dow Chemical Company
Monsanto Chemical Company
American Cyanamid Company
Air Reduction Company

The eight chemical stocks have continually sold above the steel and paper groups, as well as the average industrial stocks.

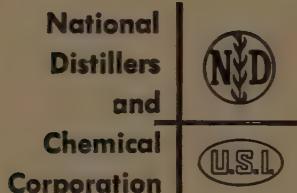
Based on 1956 earnings and prices, ratios were approximately 10 for the eight steels as compared with 13.5 for the Standard & Poor's Industrials, 17 for the eight paper stocks and 23 for the eight chemicals. Using April 18, 1957 prices, and 1956 earnings, the price earnings ratio for the eight steels remained unchanged at approximately 10; the eight paper stocks had declined to 14 times earnings and the eight chemicals to 21 times earnings. Standard & Poor's Industrials were fractionally higher at 13.6.

The explanation of relative price-earnings ratios and market behavior for individual groups or specific stocks cannot always be divorced from market sentiment or "romance." Widely-held opinions about a particular industry do

influence the investing public's evaluation of the stocks of that industry, even when the opinions may not agree with the facts. Sooner or later, however, the facts prevail.

While the steel stocks are on the low side with respect to price-earnings ratios, their dividend yields are better than average. Based on April 18, 1957, prices, and current dividends, the yield on the eight largest steel stocks averages 5.1%. This compares with 3.6% on the paper stocks, 3.3% on the chemical stocks and 4.2% on the Standard & Poor's Industrials.

In summary, the case for a lower price-earnings ratio for the steels as compared with the average industrial stock, is not sustained by the facts. The steel industry's increased earning power—as well as its changed relationship to the total economy—are well worth further investor analysis.



DIVIDEND NOTICE

The Board of Directors has declared a quarterly dividend of 25¢ per share on the outstanding Common Stock, payable on September 3, 1957, to stockholders of record on August 9, 1957. The transfer books will not close.

PAUL C. JAMESON

July 25, 1957. Treasurer

SOUTHERN NATURAL GAS COMPANY

Birmingham, Alabama

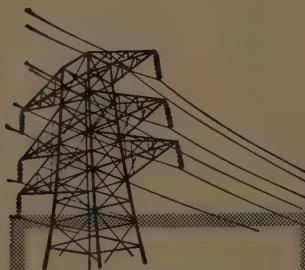
Common Stock Dividend No. 74

A regular quarterly dividend of 50 cents per share has been declared on the Common Stock of Southern Natural Gas Company, payable September 13, 1957 to stockholders of record at the close of business on August 30, 1957.

H. D. McHENRY,

Vice President and Secretary

Dated: July 20, 1957



Southern California Edison Company

DIVIDENDS

The Board of Directors has authorized the payment of the following quarterly dividends:

CUMULATIVE PREFERRED STOCK,
4.08% SERIES
Dividend No. 30
25½ cents per share;

CUMULATIVE PREFERRED STOCK,
4.24% SERIES
Dividend No. 7
26½ cents per share;

CUMULATIVE PREFERRED STOCK,
4.88% SERIES
Dividend No. 39
30½ cents per share.

The above dividends are payable August 31, 1957, to stockholders of record August 5. Checks will be mailed from the Company's office in Los Angeles, August 30.

P. C. HALE, Treasurer

July 19, 1957



MINNEAPOLIS GAS COMPANY

739 Marquette Avenue
Minneapolis 2, Minnesota

Common Stock Dividend

The Board of Directors of Minneapolis Gas Company, at a meeting held on July 11, 1957, declared a dividend of 35 cents per share payable in cash on August 10, 1957, to common stockholders of record as of the close of business July 26, 1957.

G. T. MULLIN, President



THE FLINTKOTE COMPANY

New York 20, N. Y.

QUARTERLY DIVIDENDS have been declared as follows:

Common Stock*
sixty cents (\$.60) per share

\$4 Cumulative Preferred Stock
one dollar (\$1) per share

Both dividends are payable September 16, 1957 to stockholders of record at the close of business August 30, 1957.

WILLIAM FEICK, JR., Treasurer
August 7, 1957.

*116th consecutive dividend



Tall Oaks from Little Acorns Grow"



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Pittsburgh's wholly owned subsidiary, Columbia-Southern Chemical Corporation, serves a large and diversified group of customers whose products are vital to the welfare of our nation. Food processing, agriculture, sanitation, paper, glass, chemicals, steel are but a few of the industries which look to Columbia-Southern for materials.

Yes, through sound policies and a progressive outlook, "Pittsburgh Plate" has grown into an important member of America's expanding industrial family.



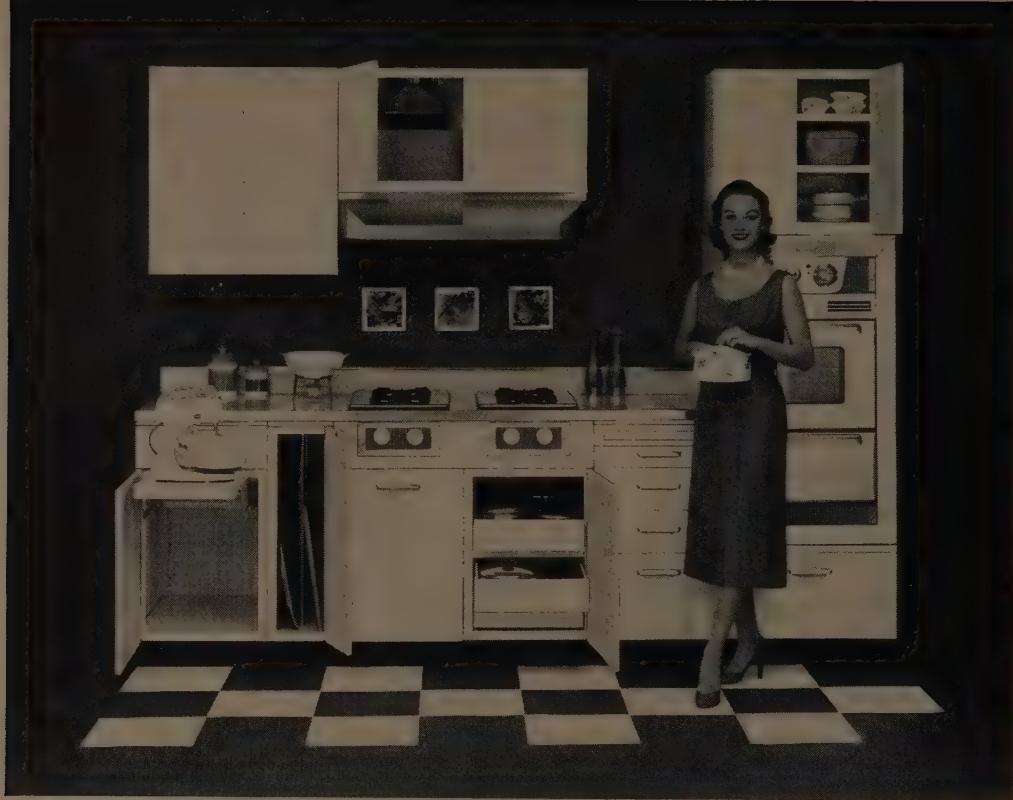
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PITTSBURGH PLATE GLASS COMPANY

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• MERCHANTISING



Color Convinces

Republic cuts a colorful figure in the 188-million-dollar Kitchen Cabinet Market

A few short years ago the kitchen-conscious housewife was more sold on wood's warmth than on steel's durability.

But times have changed.

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How's color doing?

Colored kitchens now account for 42%

of all steel kitchen cabinets sold. And they're gaining at the rate of one to two per cent *a month*.

How big is the kitchen business?

If all the other types of kitchens (cabinets) installed in 1956 had been steel, the total steel sheet used would have been about 450,000 tons—almost as much as the total steel sheet and strip tonnage used by agriculture in 1956.

With the introduction of bright new hues, steel kitchens are zooming in popularity. They're most encouraging as a growth avenue for steel, especially for Republic Steel, the only company with "ore to store" integration.

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Where diversification creates stability

Depreciation, Flow of Funds and the Price Level

CHARLES T. HORNGREN

A SURVEY OF THE EXISTING LITERATURE on investment analysis, plus scrutiny of 123 written analytical reports, and the collection of the opinions of 51 analysts in trust departments of banks, investment counseling firms, underwriting houses, insurance companies, investment trusts, brokerage houses, and investment research firms in New York City and Chicago have yielded some impressions which may be of interest to security analysts.

PRICE LEVEL ADJUSTMENTS

When one considers the abundance of literature which has been produced in recent years concerning the impact of changing price levels, the most startling discovery in this investigation has been the stand of security analysts against "tampering" with conventional financial statements by applications of price-level adjustments. Not one analyst who was interviewed favored attempts to adjust conventional statements for price level changes. On the contrary, analysts seem to think in terms of current dollars. The probable influence of the changing purchasing power of a 1938 dollar and a 1954 dollar generally is not considered to be relevant in analyzing specific financial data.

DEPRECIATION DATA

The analysts' treatment of depreciation data is significant because it indicates why price level adjustments are considered to be irrelevant.

As a passing comment in this discussion, it is noteworthy that the analysts are not very precise when they refer to depreciation and amortization charges. Sentences such as the following are found frequently in analysts' reports: "Except for 1958, amortization and depreciation alone should generate substantially more than enough cash to meet all maturities of the present funded debt."

Depreciation is the systematic allocation to expense of the original cost of fixed assets. To speak of depreciation charges as if such allocations of original cost generate cash is not too far-fetched if it always is kept in mind that such a notion is merely a short-cut calculation which is related to the ultimate source—funds received from the sale of goods to customers. However, sentences such as the one quoted above, and verbal comments by analysts lead this writer to wonder if there is a danger that some investors tend to believe that depreciation charges themselves gen-

erate cash. There seems to be some hazy thinking about the relationship between depreciation accounting and funds provided by customers.

Disregarding the difficulties of terminology, analysts' ideas about depreciation reveal a definite pattern of thinking which points toward the reasons for their aversion toward price level adjustments.¹ Notice in the following excerpt from an analyst's probing of Company A the tendency (a) to think of depreciation as a cash flow and (b) to relate depreciation and amortization either to the debts which arose from capital expenditures or to new expenditures on plant or both. A similar analytical approach is illustrated in the four excerpts which follow this analysis of Company A. All of these excerpts have been chosen because they exemplify the typical analytical techniques with respect to depreciation charges. The Company A example is shown below.

Notice the linking of depreciation with capital expenditures in the following excerpt from an analysis of Company B:

We understand that the bulk of the \$125 million loan will be taken down this year. This company's large expansion and modernization program may well require \$50 million for plant and facilities in both 1954 and 1955. Depreciation provision for 1954 is estimated at about \$28 million including roughly \$7.5 million accelerated depreciation unallowable for FIT purposes. If the Revenue Act is changed in line with present suggestions, Company B may take the maximum allowable—probably equal to roughly its present provision. In any case, Company B's plant and equipment expenditures will probably exceed depreciation by a total of about \$50 million over the next two years.

A further illustration of the analyst's approach to depre-

1. Benjamin Graham and David Dodd, *Security Analysis* (3rd ed.; New York: McGraw-Hill, Inc., 1951), p. 130, refer to the problem of charging depreciation at other than original cost as follows: "From the standpoint of security analysis there may not be much difference involved in accepting either the original cost or a higher replacement cost as the basic value against which depreciation should be allowed. The higher-replacement-cost basis would result in decreasing the computed earnings in a given year, because of larger depreciation; but it would result, also, in increasing the assumed economic value of the assets—i.e., the book value of the stock. If both factors are given proper weight in arriving at a fair appraisal of a stock issue, the changes involved are likely to offset each other to a great extent."

(Millions)	Debt Maturities		Estimated Amortization and Depreciation			Coverage of Min. Maturity
	Minimum	Optional	Depreciation	Amortization	Total	
1953	\$11.2	\$...	\$16.6	\$12.5	\$29.1	2.6X
1954	12.0	...	22.8	13.5	36.3	3.0
1955-58			(all details as above through 1959 as follows)			
1959	8.3	10.4	2.5	16.1	18.6	2.2

Amortization and depreciation alone should generate sufficient cash to meet all obligations of the present debt through 1959.

ciation is found in the following excerpt from an analysis of Company C:

Its cash flow from depreciation and amortization is now running at about \$60 million annually. . . .

Company C continues its capital expansion program which is very large in terms of dollars and even quite large in terms of Company C itself (10-12% of gross plant). Specifically, capital expenditures in 1953 were approximately \$65 million. We estimate that expenditures for 1954 may be \$65-\$75 million. . . . Most of the required funds are coming from depreciation, including accelerated depreciation not allowable for income tax purposes. . . . We estimate that Company C's total depreciation provision in 1954 will be \$60-\$65 million.

The following excerpt again illustrates the tendency to relate depreciation charges with debt retirement. This paragraph is taken from a comparative analysis of the aluminum industry:

Although depreciation and amortization charges will be heavy during the next five years, the fact that they will generate large cash earnings will facilitate orderly and rapid retirement of debt incurred to finance the expansion program. Alcoa, for instance, estimates that the company will accumulate enough cash through 1958 to permit the retirement of almost \$300 million of senior obligations.

The application of "depreciation funds" to plant outlays is further illustrated in the following passage from an analysis of Company D:

Depreciation, amortization and retained earnings are now indicated to be sufficiently sizable to handle presently authorized construction this year and next with only a moderate decrease of the excellent cash assets to total current liabilities ratio. In the five years 1949-53 depreciation and retained earnings averaged \$3.3 million, rising to \$3.9 million in 1953, as compared with average annual plant building of \$7.6 million. This year depreciation, amortization, and retained earnings are rising to an estimated \$5.6 million, about in line with reported building authorizations.

ANALYSTS' REASONING

The techniques indicated above with respect to depreciation, plus a unanimous aversion to index-number or replacement cost adjustments to historical cost methods of determining income, lead to speculation concerning the security analyst's concept of income.

The analyst evidently divides the revenue inflow from customers as if depreciation were that portion of revenue set aside for the purpose of capital expenditures.

A table of the analyst's approach to the income statement could be drawn as follows:

Table I

Analysis of Income Statement

R current expenses paid or to be paid.

E

V

E depreciation (to be spent either in payment of debts N arising from past fixed asset outlays or for current U fixed asset outlays.)

E residual (for dividends, expansion, more working capital, payment of long-term debts).

Thus the analyst's attitude toward income determination leans toward the following reasoning. Income is the difference between revenue from customers and the current costs of obtaining the revenue (materials, wages, utilities, adver-

tising). Then the depreciation allocation is separated from this difference and should be devoted to capital expenditures or to the payment of debts arising from prior capital expenditures.² (Depreciation is "something special" which is related to fixed asset outlays.)³ The residual is available for dividends, further capital expenditures, payment of long-term debt, or expansion of working capital. Earnings as reported under conventional accounting, therefore, do not connote distributable earnings and are not thought of as such.

The analyst is almost constantly thinking in terms of current dollars. As Table I indicates, revenue is in terms of current dollars, as are current expenses (with some exceptions in the case of wildly fluctuating raw material prices coupled with Fifo inventory methods). After the current expenses are funneled off, the difference is "what's left" of revenue (current dollars). A portion of this difference is considered to be "recovery" of past fixed asset outlays and is (or should be) devoted to paying off the long-term debt which arose from prior expenditures or else applied to maintaining or enhancing physical capacity. The final difference (residual) might be used in a variety of ways as indicated in the table.

This approach of the analyst, then, does emphasize current dollars, and problems of the price level do not appear ominous to him. Consequently, he would be dismayed by attempts to recast the dollar into some other "adjusted" counter which might be meaningless or confusing in its application. Thus, as long as the analyst—and nearly everyone else—still thinks in terms of dollars (i.e., today's dollar—a dollar is a dollar is a dollar) the attempt to adjust the dollar via index numbers or some pseudo-replacement values merely offers a fuzzy concept in place of a workable, useful, and significant concept. Of course, if the purchasing power of the dollar eventually evaporates to the stage where people (and analysts) think of the dollar only in terms of the things it can buy, then the dollar concept will no longer be workable, useful, or significant.

It is not intended to imply that the analyst does not keep in mind the value of the dollar in terms of the economic backdrop. The intelligent investor realizes that reported earnings are not distributable earnings. He is aware that

2. John Ferguson, Jr., "Corporate Income Accounts," *The Analysts Journal*, February, 1948, p. 11, states: "Although a depreciation charge is not a cash outlay but merely a bookkeeping entry, it is a means by which a portion of current cash earnings *may be* conserved to replace that portion of a capital asset worn out during the period." (Italics supplied.)

3. Graham and Dodd, *op. cit.*, p. 147, lend support to this kind of thinking with their concept of expended depreciation: "It may be proper to reduce depreciation to a figure approximating the average annual expenditure on plant additions and replacements over, say, ten to fifteen years in the past ('expended depreciation'). . . . The difference would then represent sums in addition to the surplus earnings which had flowed into working capital and thus presumably had been 'realized' for the benefit of stockholders. . . . It (expended depreciation) is found by subtracting the decrease in net plant account from the total depreciation charges for the period. . . . More simply, the 'unexpended depreciation' for a period is equal to the decrease in the net plant account during that period. (Substantial sales of property or write-downs charged to surplus would ordinarily be added back to plant in making this calculation.)"

simple replacement of productive facilities requires more dollars than are being "generated" by depreciation charges. So his analysis emphasizes the impact of capital expenditure requirements upon future earnings and dividend-paying potentialities. After all, from the investor's vantage point, distributable earnings are earnings to be paid *out* in the form of dividends. And in the valuation of securities probably one of the factors explaining the historically weak price-earnings ratio (of 1947-1949) is that needs for capital outlays reduced dividend payout possibilities. This, then, is the "plus" or "minus" that the analyst applies in his allowance for price level changes.

Furthermore, when an analyst examines depreciation charges, he tends to appraise the amount of depreciation in terms of its "adequacy." In other words, depreciation sometimes is "inadequate" if the price level has changed substantially so that the depreciation amounts being charged are now insufficient to meet capital replacement demands.

Certainly this is an example of how the analyst is cognizant of the changing price level. It also indicates the pattern of the analyst's thoughts concerning depreciation as that part of the current inflow of funds from customers that is or should be earmarked for capital expenditures.

CONCLUSIONS

It has been shown that many analysts think of the income statement in terms of fund flows of current dollars. Furthermore, if the analyst examines his own work with balance sheets, he will probably agree that much of his work is concerned with the interrelationships of fund flows with respect to working capital needs, plant and equipment expenditures, capitalization structures, and dividend policies.

The implications of the above for accountants and the managers whom they serve are obvious. More attention should be given to the problems of reporting the sources and uses of funds.

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What Is Wrong With the Airlines?

CREIGHTON HARTILL

SINCE WORLD WAR II few industries have given the investment community greater hope and less realization than the airlines. Almost overnight, the war, and the atom bomb transformed aviation from the concern of a small band of devotees to a vital role in the lives of every citizen. Airmindedness became widespread, and reflecting a buoyant public optimism for the growth of air travel the shares of all leading airlines more than doubled in price during 1946 alone.

Physically these expectations have been more fulfilled. Last year the U. S. airline industry flew 2.7 billion passenger ton miles, an increase of 240% since 1947 and more than double the 1951 figure. Air freight, although still far less important than passenger traffic, has maintained an even stronger rate of growth. It has increased from 38 million ton miles in 1947 to 434 million ton miles in 1956, a gain of over 1,000% in only ten years.

Earnings are less impressive. In 1956 pre-tax operating income was \$134 million, only 4% above the 1951 figure despite an 82% increase in total operating revenues during this period. Why are the results so poor? In short, what is wrong with the airlines? There are two related reasons for the conspicuous lack of earnings growth.

First, as now constituted under the decisions and regulations of the Civil Aeronautics Board, the operations of the domestic airline industry are uneconomic, illogical and will, if continued in their present form, result in a collapse of private airline ownership in the United States.

Second, the airlines need a small emergency fare increase. As in the case of every public utility, rate structures must be considered by the regulatory authorities in the light of services rendered for them. Over the past few years the overall quality of airline service has been rapidly declining, weakening the industry's campaign for fare increases and rendering the outcome of this vital program far more doubtful than it deserves to be.

THE AIRLINE INDUSTRY IN 1938

When the Civil Aeronautics Act was passed in 1938 the airline industry was in a state of chaos. Unregulated competition for a relatively inelastic market created a situation such as prevailed in the railroad industry prior to enactment of the Interstate Commerce Act; namely, an overall financial instability threatening a collapse of the system. Industry sources estimate that 50% of the \$120,000,000 of private capital invested in the airlines before 1938 was lost. Representative Clarence F. Lea, House sponsor of the Civil Aeronautics Act, described the situation as follows: "the industry has reached the point where unbridled and unregulated competition is a public menace."

The new philosophy of competition assured quality service, and permitted a level of profits high enough to accumulate the tremendous sums and the new capital required to finance dynamic expansion. The industry prospered. The

post World War II years have brought the airlines to maturity. From 1947 to 1951 total operating revenues increased from \$574 million to \$1 billion, a gain of 74%. Net operating income before taxes was \$127 million in 1951 compared with a deficit of \$22 million in 1947. Consolidated industry net worth, only \$267 million in 1948, rose 88% to \$501 million in 1952. Even more important, net current assets of the airlines, characteristically cash-hungry while facing ever mounting new equipment expenditures, rose in this interval from \$35 million to \$127 million, or 260%. In short, the first half of the post-war decade lent substance to the hope that the airline industry could at least become financially self-sustaining. Then the dream of aviation pioneers seemed near fulfillment.

But in recent years this promising situation has sharply deteriorated. Total revenue ton miles carried by the industry increased from 1.7 billion in 1951 to 3.5 billion in 1956, representing a double in physical volume in only five years. Despite this, net operating income last year of \$134 million was only slightly above the 1951 figure and 7% below the operating income peak of \$144 million attained in 1955. These unfavorable trends are rapidly accelerating. Industry wide data for the first quarter of 1957 are not available but analysis of the three largest, and characteristically most profitable domestic airlines discloses a serious erosion in their earning power. For the three months ended March 31st, American Airlines' total operating revenues were \$71 million, 10% above last year. Net operating income, however, was \$1.1 million, or 62% below the \$2.9 million reported in the first quarter of 1956. For Eastern Air Lines, the comparable figures are, total operating revenues \$71 million or 14% above last year, net operating income \$6.2 million, or 48% below last year. Of the big three, United was hit the hardest by profit margin erosion; although gross operating revenues rose 6% to \$60 million, the first quarter net operating income was a deficit of \$855 thousand compared with a profit of \$295 thousand in the first quarter of 1956.

THE IMPORTANCE OF THE SECOND & THIRD QUARTERS

Characteristically, because of the seasonal nature of coach and recreational as opposed to business first-class travel, the second and third quarters are financially the most important to the airlines. Last year, for example, combined they accounted for 62% of total operating revenues and 84% of net operating income. It is, therefore, too early to predict that the sharp profit declines of the first quarter will necessarily carry through the year as a whole; however, unfavorable operating trends continue, and there is no question that 1957 airline profits will be sharply below those of 1956. In fact, United's financial vice president recently forecast for his company, unless fares are increased, a 1957 after-tax net income from operations of \$7 million, about 30% below last year's results. Few others are more optimistic, many

less so, and last year's consolidated industry decline of 7% in net operating income may well triple in 1957.

On the other hand, the growth of air transportation and the development of efficient yet expensive turbo-prop and turbo-jet aircraft continue apace, creating tremendous financial burdens which the industry is not prepared to assume. If the rate of growth of the past five years continues, by 1967 annual revenue ton miles will total about 14 billion, 300% above the 1956 level. In order to provide the vast amount of new equipment required to finance this dynamic growth, it is estimated that the airlines must spend about \$4 billion in the next ten years.

THE SOURCE OF FUNDS

Where will they get the money? As of December 31, 1956 consolidated industry net worth was \$754 million, of which \$686 million represented depreciated flight equipment. Offsetting these items, long term debt was \$364 million, or 50% of net worth, and working capital of \$135 million was 7.3% of 1956 total operating revenues compared with a 1952 working capital/operating revenues ratio of 10.9%.

In the past the airlines have relied heavily on borrowings to finance equipment purchases, formerly on a relatively short term basis from commercial banks, but today increasingly on a long term basis from major life insurance companies. However, every lender strives, as a matter of sound business judgment, to obtain the maximum security behind his commitment, and in the past the general rule of thumb in the airline industry has been a dollar of equity for each dollar borrowed against each aircraft. In fact, on a consolidated industry basis the debt ratios for the following years have been: 1956—53%; 1954—44%; 1952—49%.

Assuming that the airlines will be able to borrow 50% of the \$4 billion required for new equipment alone, can they increase their net worth \$2 billion by 1967 so as to maintain the 50-50 debt-equity ratio characteristic not only of airlines but of other regulated public utilities such as electric light and power companies? Last year consolidated industry net earnings, including capital gains from the sale of aircraft, totaled \$79 million before dividend payments. This year, as previously indicated, the figure will be substantially lower. Even if airline profits were double their present level, and no dividends whatever were paid for the next ten years, their annual rate would not be sufficient to increase net worth \$2 billion by 1967.

It is obvious that in order to attain, or even approach this objective a substantial amount of equity financing must be done by the airlines over the next decade. Yet airline shares are deservedly unpopular, especially with the institutional investors who comprise the most important source of new equity capital in America today. The industry's tremendous physical growth has not been accompanied by the per share earnings and dividend growth which are the key characteristics of successful equity investment. Price performance has been even worse, it too reflecting investor disappointment over the airline financial situation. A composite share of the four largest domestic trunk airlines sold in May 1957 at only 59% of its 1946 high, while the Dow Jones Industrial

Average has tripled in this interval. Moreover, current airline share prices, although significantly lower than two years ago, even at present levels possibly do not fully discount the industry's bleak earnings prospects. Today it is probably impossible for even a major domestic airline to secure substantial amounts of additional equity capital without seriously diluting the interests of present shareholders. Even the composite big four share sells today below the book value, a composite of four smaller trunks sells more than 20% below book.

Faced with the necessity of providing vast new fleets despite a low level of retained earnings and the consequent inability to raise outside equity capital, the airlines have turned to the life insurance companies for long term equipment financing. Most of these agreements were private, and details are difficult to obtain. In general they provide for higher debt ratios and long maturities than in the past when commercial banks constituted the principal source of equipment financing. These deals are of interest to the life insurance companies because of the fact that cash flow is relatively large in relation to the funds required (last year for the consolidated industry it was \$228 million, or 27% of the depreciated value of all equipment) and the fact that transport aircraft have established a high re-sale value, making them excellent collateral in the event that a particular creditor is unable to meet its obligations.

The life insurance companies are not primarily in the venture capital business, they are still creditors of the airlines, not owners. Their investment operations are fundamentally based upon avoidance of loss, and their participation therefore reduces but does not eliminate the need for substantial amounts of additional equity capital. Unless these sums can be obtained, partially through retained earnings, partially through sales of additional shares, the private airline industry in the United States will inevitably collapse as it has in most foreign countries.

The demand for expanding, faster, and in time less expensive service, is present and pressing, and unless private industry is permitted to fulfill it, government ownership, and one more victory for socialism over free enterprise, will soon take place.

DECISIONS OF THE CIVIL AERONAUTICS BOARD

Unfortunately, however, the Civil Aeronautics Board has chosen to ignore its fundamental responsibility to plan and maintain a financially sound and vigorous air transportation industry. On the contrary, in recent years its decisions have brought a renascence of the uneconomic competition. This characterized, and nearly bankrupted, the industry prior to passage of the Civil Aeronautics Act. In 1938, when the act was passed, 23 airlines served 286 cities; today 56 airlines serve 690 cities. On a percentage basis the board has permitted the number of certificated airlines to increase as rapidly as the number of cities served, exactly the situation which nearly destroyed the railroad industry in the 1890's.

The consolidated industry figures, previously quoted, do not reveal the full extent of the CAB's economic indifference. The local service airlines, which since World War II have enjoyed a revenue ton-mile growth more than three

times that of the combined industry, lost money in seven out of the ten years since 1947. Since 1948 their net worth has increased only 42% while their annual revenues have increased more than 300%. Obviously they are in no condition, without heavy additional government subsidy, to finance the tremendous amounts of new equipment required for this rapidly growing segment of the industry.

Faced with this situation the CAB has, especially in recent years, decided that the way to improve the financial status of the local service airlines is to award them the longer and generally more profitable routes previously served only by the trunk carriers. As a result once lucrative routes, and every airline needs some of these to offset unprofitable operations carried on in the public convenience, have become so competitive that no one, neither the original franchise holder nor the newer competitors, now makes much money from them. On an industry-wide basis the passenger load factor, key to profitable or unprofitable operation, has eroded sharply as the result of the CAB's decisions. In 1951 it was 69.6%; last year, 64.1%, and industry sources estimate that on the basis of 1956 costs a 1% decline in load factor reduces industry operating profits by \$15.5 million. Had the CAB allowed the airlines to maintain their 1951 passenger load factor, industry operating profits in 1956 would have been increased by about \$78 million to a level 58% above that actually reported.

THE NEED FOR EMERGENCY FARE INCREASE

To offset the intensifying cost-price squeeze in which they find themselves, the airlines badly need a small emergency fare increase. A 6% rise in total operating revenues would on the basis of present costs almost double industry-wide net operating income. Unfortunately, the possibility of obtaining a fare increase is at best doubtful. To the contrary, Congress, which has the ultimate authority of airline fare structures, is currently attempting to ascertain whether fares are not already too high, and the CAB has not seriously challenged this contention. This cloudy and dangerous political climate seems to have resulted from general public indifference to airline finances and a growing general conviction that a good part of the trouble is due to inefficient managements as evidenced by the striking decline in service quality which has occurred over the past few years.

Hot, dirty airplanes, poor food, delays caused by over-scheduling of equipment and avoidable breakdowns seem increasingly characteristic of airline operations. Last year the industry spent \$55 million on advertising and publicity, or 70% of its net income after taxes, but the value of this enormous expenditure was largely offset by treatment of the passenger following sale of the ticket. Without exception the heavy air travelers with whom the author talked on a recent airline trip to several different parts of the United States felt that irritations and inconveniences are today more prevalent than only a few years ago. The lack of taxis at Los Angeles, the slow and inefficient limousine service at Baltimore, the practice of one airline in not reporting changes in estimated times of arrival, the lack of another of sufficient pilots qualified for instrument flying, indifferent stewardesses and inedible food on a third were cited as specific examples of readily correctible faults. Each of these

undermine the strength of the fare increase program and help spread a belief that poor airline profits are primarily due to poor airline management.

After bitter experience the railroads and the electric companies learned that a satisfied customer is just as essential to their well being as he is to that of a freely competitive industrial or commercial enterprise. The satisfied customer accepts the economic necessity of justifiable rate increases, does not oppose them, and in some instances has actually been organized in their behalf. This is a vital area of airline management which the industry has largely ignored.

Airline shareholders, too, constitute another virtually un-tapped source of support for a sound economic approach to air transportation. Unfortunately, airline annual reports are characteristically little more than travel brochures containing only the briefest financial data and little or no discussion of the company's problems as well as its achievements. Rarely do they differentiate clearly between operating income and non-recurring income arising from the sale of surplus aircraft. Some are actually misleading in this respect as in the case of one major airline whose earnings gains over the previous year, emphasized in the report, were entirely due to aircraft sales. In this instance although total net income per share was up 31%, operating earnings were down 19%. Airline management communication with their shareholders about these and other vital matters appears to be among the least effective of any major industry.

RESPONSIBILITIES OF AIRLINE SHAREHOLDERS

Where do our responsibilities lie as advisors to and representatives of airline shareholders, as members of the investment community, as citizens concerned with the future of private commercial aviation in America? There are three basic steps which each of us can take. First, we should vigorously support the industry campaign for a moderate fare increase. This is essential as a stop gap measure to provide the additional funds required to place into operation the turbo-prop and turbo-jet equipment already on order and due for delivery in 1958 and 1959.

Second, we must urge the creation of a temporary Presidential Commission on Air Transportation. The Commission should be composed of distinguished citizens intimately familiar with every aspect of the air transport industry and able to create a comprehensive plan for the guidance of the Civil Aeronautics Board outlining the economic as well as the operational potentialities of American civil air transportation and recommending to Congress such legislation as may seem desirable.

Third, we should assist in every way possible the efforts of airline managements to educate their customers, their shareholders, and the general public on the economics of air transportation. Notwithstanding its spectacular development in recent years, air transportation is still an infant industry. Its potentials of growth are greater than ever before, and in time the atomic airplane will open up a new era of transportation as revolutionary as that which began with the Wright brothers' first flight. Technologically there is no limit. Today only economics is the barrier. We must assist the industry break through its dilemmas.

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HELPING AMERICA MAKE BETTER USE OF ITS RESOURCES

The Ethical Drug Specialties

ERNEST OPPENHEIMER

AT A TIME when many industries have suffered from wasting profit margins, the ethical drug specialty companies exhibited robust profitability. By concentrating on a small number of superior specialty drugs preferred by physicians, G. D. Searle has managed to maintain pre-tax profit margins at 50% and net return on capital at around 30% for the past six years. After providing doctors with new weapons against mental illness, Smith, Kline & French's pre-tax profit margin was boosted to 40% and net return on capital to 43%. In 1955 Schering Corporation gave physicians improved means for treating rheumatoid arthritis; as a result, its pre-tax profit margin jumped to 40% and net return on capital to over 40%.

The formula which proved successful for the above companies was the concentration of research, development, and sales efforts on a limited number of outstanding products in fields with a large market potential. Thus G. D. Searle's product line is limited to 25 items; Schering's to about 50; Smith, Kline & French's to around 60. Specialization facilitates the improvement or displacement of existing drugs, the discovery of new applications and variations, and the establishment of a strong trade position. In view of the high rate of product obsolescence in the ethical drug field, this policy has considerable merit.

Research and product development may be considered the heart of the ethical drug business. This is evident from the fact that ethical drug companies generally spend more money on research per dollar of sales than any other industry group. Moreover, numerous non-profit organizations, such as hospitals and universities, as well as the government, engage in large-scale efforts to develop new drugs. Over-all expenditures for research are estimated at \$300 million per annum, with the drug companies accounting for about one-fifth of the total.

The specialty companies exceed the industry average of five cents research expenditures per dollar of sales. During the past ten years, Schering has allocated an average of seven cents of each sales dollar to research. A similar proportion obtains for Smith, Kline & French if wholesaling operations are deducted from total sales. While G. D. Searle does not provide exact figures, there is strong evidence that the company ranks near or at the top in terms of the percentage of income devoted to research. To lend additional perspective to the research effort, Schering spends over \$3 million and employs more than 250 scientists for this purpose; Smith, Kline & French's current research budget approximates \$6 million and the staff about 600; G. D. Searle's research outlay is estimated at above \$2 million and the staff at 300.

POPULATION TRENDS INFLUENCE THE DRUG MARKETS

Markets for drugs are significantly affected by population trends. The ethical drug industry has benefited not only from the general increase in population, but also from

the fact that a steadily growing number of individuals fall into the two categories which constitute the largest per capita drug consuming groups; i.e., the children and the aged. Births now occur at an annual rate of about four million and drug consumption by children is about three times that of the national average for the population as a whole. There are more than fourteen million people over sixty-four in the United States. This age group spends about nine times as much for drugs as the general population. The ability to pay for drugs has been strongly buttressed by extensive health insurance coverage, now exceeding \$7 billion, as well as by social security, pensions, and other benefits which are of particular significance to older people. These factors, together with the desire to use the best available medication in case of illness, provide the ethical drug industry with a significant cushion against decline due to general economic trends.

The very success of the drug industry in prolonging the life span increases the market for its products. According to a report issued by the Metropolitan Life Insurance Company, life expectancy of Americans at birth has reached seventy years for the first time in history. This constitutes an extension of life expectancy by 5 1/2 years during the last ten years alone. A large share of the credit for this remarkable development should be accorded to the antibiotics, which have provided medicine with weapons for curing most illnesses caused by bacteria. While deaths from the latter have been declining drastically, other diseases are taking increasingly larger tolls. The leading killers now are the so-called degenerative diseases, including heart and circulatory disorders, cancer, liver and kidney malfunctions. Other wide-spread, though not usually fatal, illnesses include arthritic and the mental disorders.

RESEARCH EFFORTS OF SPECIALTY COMPANIES

An analysis of the product line and research effort of the specialty companies reveals that their concentration is in the very fields which now loom as the largest causes of crippling diseases and death.

Smith, Kline & French plays a dominant role in the mental health drug field. The magnitude of the latter may be ascertained from the fact that mental patients occupy more than half of all hospital beds, and that estimates of the number of people subject to mental and emotional disorders run as high as 10 per cent of the total population. Thorazine, a tranquilizer first marketed by Smith, Kline & French in 1953, has been considered the most promising development in many years for the treatment of seriously disturbed patients. The company is currently introducing Compazine, a tranquilizer for less severe cases. In addition to the mental health drugs, the company has pioneered in the development of Spansules, designed to release drugs in the body over a prolonged period of time. This principle has a great many applications.

G. D. Searle concentrates its research on heart, kidney, and liver disorders, malignancies, hardening of the arteries, hypertension, and oral fertility control drugs. The company has currently more products under clinical examination than at any previous time in its history. Oral fertility control (contraceptive) drugs are presently being field tested abroad. Among the company's leading products are Dramamine (for motion sickness), Banthine and Pro-Banthine (for peptic ulcers), Aminophyllin and Kiophyllin (for respiratory and heart conditions), Ruphyllin (for arteriosclerosis), Mictine (a diuretic), and Metamucil (a bulk laxative).

Schering holds a leading position in the production and sale of arthritic drugs, antihistaminics, male and female sex hormones, chemotherapeutic agents, and X-ray diagnostics. The company has also entered the fields of anesthetics, tranquilizers, and veterinary medicine. The most important products are Meticorten and Meticortelone, used for the treatment of rheumatoid arthritis. The "Metis" have been combined with other drugs for a wide range of applications, including Metimyd for eye conditions, Meti-Derm for skin disorders, Metreton for allergies, Sigmagen for rheumatism, and Metibiotic for bovine mastitis (a cattle disease). In addition to the "Metis," the company manufactures some fifty ethical specialties.

EARNINGS OF SPECIALTY COMPANIES

As might be expected, sales and earnings of the specialty companies have shown marked growth trends. Using 1947-49 as a base period, sales of G. D. Searle and Smith, Kline & French almost tripled by 1956, while Schering's more than quadrupled. During the same period, Searle's earnings increased 3½ times; Smith, Kline & French's im-

proved more than four-fold; Schering's jumped nearly seven-fold.

Contrary to what might be expected from the above record, the market action of the common stocks of the three companies has been quite divergent. Currently, G. D. Searle (42) sells 27 times 1956 earnings of \$1.55 per share; Smith, Kline & French (57) has a multiplier of about 14 on \$4 earnings; while Schering (58) is rated far below the others, selling at only 8 times earnings of \$7 per share (including approximately \$1.00 unconsolidated earnings from foreign subsidiaries).

The low market appraisal of Schering's stock merits some attention. The most frequently cited reason concerns the heavy dependence on the "Metis" drugs. On the basis of the available evidence, it seems that these earnings are probably more secure than is generally acknowledged. The company's leading trade position, intensive research effort, and discovery of new applications all augur well for a continuation of a favorable performance. Moreover, it should be noted that dependence on one or a small number of products for a major portion of sales and income is rather prevalent in the specialty field, and is not generally appraised unfavorably by investors.

A more probable reason for the low price-earnings ratio of Schering lies in the nature of the stock ownership. Whereas a large portion of the stock of Smith, Kline & French (and G. D. Searle, as well) is closely held, Schering's shares are very widely distributed among 15,000 stockholders. The available information indicates that only about 100,000 shares of the 1,760,000 outstanding are in institutional portfolios. No individual or institution holds more than 2% of the stock; ownership by officers and directors of the company is nominal. The large turnover (almost 1.4 million shares in 1956) indicates that Schering has been treated more as a trading vehicle than as a long-term investment. There is evidence that this situation may be changing, for institutional buying of the stock has been forthcoming recently.

THE OUTLOOK

To sum up, the outlook for the ethical drug field in general and the specialty companies in particular is very bright over the foreseeable future. All areas of human affliction, including heart disease, cancer, the degenerative disorders, and mental illness, are being submitted to an unprecedented research effort. The cumulative effect of the approximately \$2 billion spent on drug research in the post-World War II period provides a powerful impetus for exciting developments.

It seems likely that the specialty companies will continue to enhance their position by providing doctors with increasingly effective weapons in the fight against disease. Because the discovery of new "wonder drugs" is dependent upon many variables, it seems best to hedge their development by spreading investments among a number of firms with sound management, outstanding research effort, and established trade position. The three companies discussed merit serious consideration for inclusion in such a diversified portfolio, with Schering a particularly attractive purchase at current price levels.

YALE & TOWNE

Declares 278th Dividend

37½¢ a Share

On July 25, 1957, dividend No. 278 of thirty-seven and one-half cents per share was declared by the Board of Directors out of past earnings, payable on Oct. 1, 1957, to stockholders of record at the close of business Sept. 10, 1957.

WILLIAM H. MATHERS
Vice-President and Secretary

THE YALE & TOWNE MANUFACTURING CO.
Cash dividends paid in every year since 1899

Comparative Net Yields on Stocks and Municipal Bonds

R. W. STORER

AS TAX-EXEMPT YIELDS ON MUNICIPAL BONDS reach new highs for the past twenty years and more, it becomes tempting to draw historical comparisons between such yields and those available after income tax from industrial common stocks. Any such comparison must recognize the limitation to its value, resulting from the different motives normally involved. We need not adopt the extreme attitude that "nobody buys common stocks for yield anymore" to concede that yield frequently is not the primary objective in equity buying.

The type of comparison mentioned above is subject to both quantitative and qualitative problems and limitations. Quantitatively, we have (1) varying rates of taxation over the years, (2) the marital split in Federal income tax returns, starting in 1948 and (3) a rising trend of incomes over a period of years, for which correction is virtually impossible.

Qualitatively, we have the problem that a yield on fixed-income securities is relatively "firm," as compared with a yield on a variable-income security. The latter may be based on rates of dividend payments possibly ranging from an abnormally high and unsustainable level, to an equally depressed one. Further, the popularity in recent years, of common stocks as constituting a hedge against commodity price inflation, militates against general acceptance of current stock yields as representative of future income from equities. Even without this inflation-hedge doctrine, the history of long-term growth of dividend-income and of stock prices could justify some disregard of low stock yields.

The long-term rise in surtax rates, which has tended to increase the relative attractiveness of tax-exempt bond yields, has also induced, especially among high-surtax-bracket investors, a greater emphasis on long-term capital gains on stocks, and a de-emphasis on current dividend return.

Various causes of non-comparability cited above have existed in greater or less measure since the adoption of the Sixteenth or income tax amendment to the Constitution. And the fact remains that common stocks and tax-exempt bonds are alternative sources of income. An historical comparison between them affords a basis for judging the magnitude of the sacrifice if any, in income return which the market has been willing in the past, and is currently willing to accept, to obtain the growth in dividends and common stock prices.

DATA AND PROCEDURE USED

Monthly yields on the Standard & Poor's 50 Daily Industrial Stocks have been used since the beginning of 1926. These yields are based on total cash dividends per share paid over the preceding twelve months, divided by the stock price index at the end of the month. The resulting yields have been reduced to a net yield after income tax, for one low (\$7,000) and one moderately high (\$35,000) surtax bracket, by multiplying the raw yield figure for each

month by 100 minus the percentage tax rate of the top surtax bracket represented by each of the two surtax net income figures for which computations were made. For the most part, the figures are applicable to the intervening income levels by interpolation. The tax rates were those applicable under the revenue act in effect at the date of the yields being considered. No adjustment has been made for the marital split or community-property privilege which first became a Federal law in 1948.

The municipal bond yields used, also monthly since the beginning of 1926, are Standard & Poor's 15 High Grade Municipal Bonds. The yield indexes are arithmetic averages of the yields to maturity of 15 high grade municipal bonds, based on the means of monthly high and low prices. Beginning in January 1929, the indexes are an average of the four or five weekly indexes for the month.

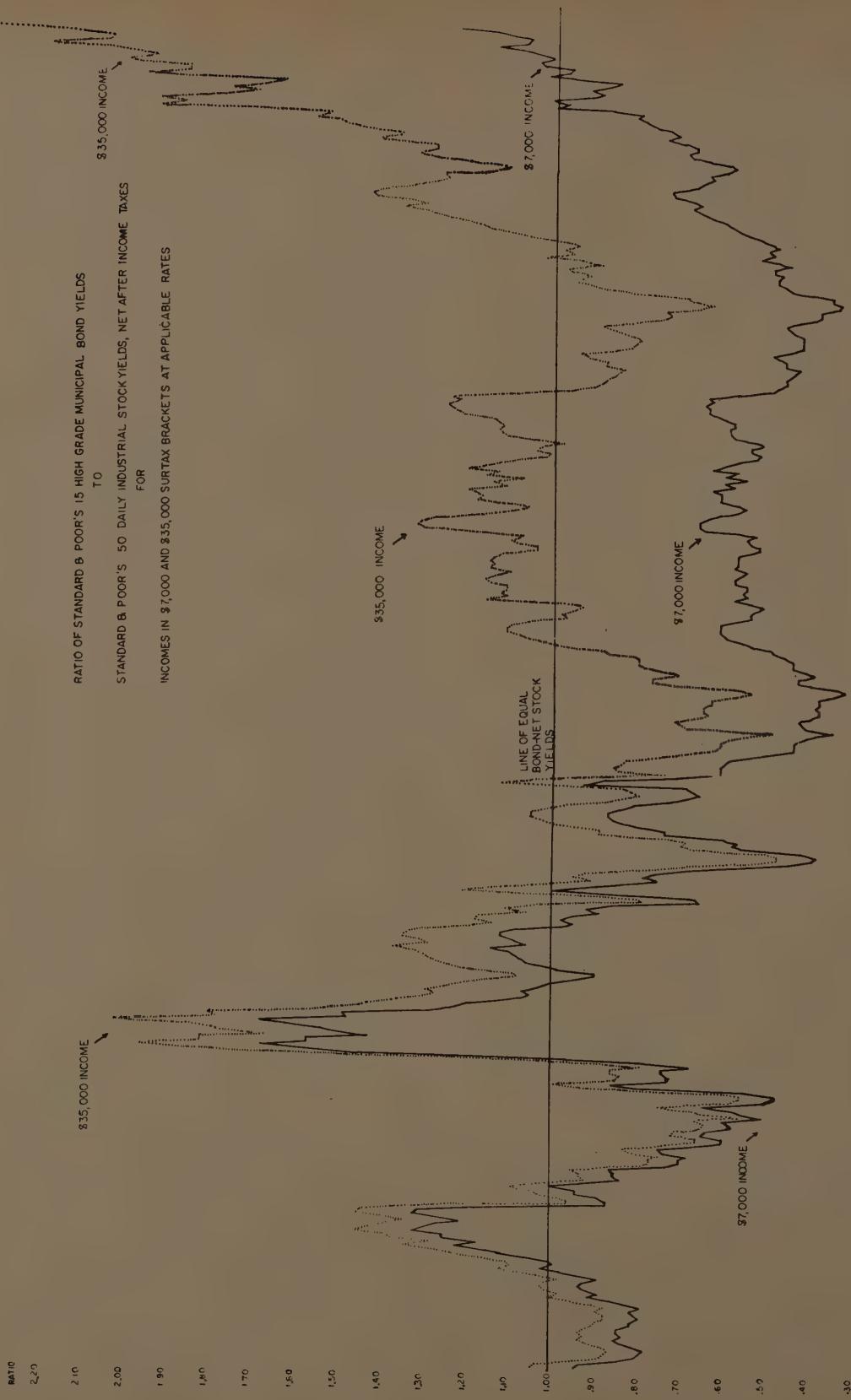
Final results, appearing in the accompanying chart, are in the form of the ratio between the tax-exempt municipal bond yields and the net, post-tax stock yields, computed as described above. Since the top surtax rate was used, (normal rate in the earlier years prior to the imposition of surtaxes) applicable to each of the two levels of surtax net incomes, the results measure the attractiveness of one or the other type of investment, only within the limits of an income substitution of one for the other inside the particular top tax bracket. This is in accordance with the practice followed most generally in comparing taxable with tax-exempt personal investments. To have adjusted stock yields by the amount of the average tax rate would have been to assume that all income was derived from dividends on stock—not a typical situation.

A ratio of unity—1.00—means that the yield on the particular index of municipal bonds used, was identical with the net yield after the top tax applicable at that time, on the particular surtax net income used—either \$7,000 or \$35,000. As the surtax rates have become more steeply "progressive" (!) over the years, the yield on common stocks necessary to equal any given level of tax-exempt yields has tended to rise. This effect has been more marked for the higher income.

THE RESULTS

The results are embodied in the accompanying chart. Neither ratio displays a sufficiently recurrent cyclical behavior to afford any basis for judging the future of stock prices. Periods of abnormally low cash dividend payments, as well as those of unsustainably high stock prices, have resulted in high ratios. The occasion when the ratio for a \$35,000 income most closely approached the present one in favoring municipal bonds was in 1934, when dividends were depressed by abnormally low earnings in 1932 and 1933.

The gradual rise in personal tax rates has tended to raise the ratios over the years. The rise has been exceptionally



rapid and sustained over the past five years. This has been less marked for the \$7,000 level of taxable income. In contrast to the ratio for a \$35,000 income, it has not reached an exceptionally high level; at 1.23 with tax exempt yields, only slightly above net stock yields—there have been substantial past periods more favorable to tax exempts. All of these were under lower tax rates, however, in 1929, and in 1933-'34.

As is well and widely recognized, of course, the margin of relative attractiveness of tax-exempts rises quite steeply with size of taxable income. More than twice as much net yield can be currently obtained on them as on stocks, for the \$35,000 taxable income; and somewhat more yield at the \$7,000 income level. This disparity has risen with the steepness of the tax-rate schedule; in the early 1930's there was little difference between the two ratios.

COMMENTS

While capital gains and losses may be sustained in tax exempt bonds, as in common stocks, only the latter have an inherent growth factor, with which systematic capital gains are generally associated in investment thinking. However, an excess of tax-exempt bond yields over net stock yields after tax, can be considered as analogous to a small but well-assured capital gain. This bond yield excess can be calculated as an equivalent pre-tax capital gain thus: The May, 1957 tax-exempt bond yield of 3.44% was 237% of the 1.47% net yield on common stocks after the top surtax on a surtax net income of \$35,000. The excess yield (3.44% - 1.47%) is 1.97%, equivalent to an assured annual capital gain on stocks of this much, after capital gains tax, or 2.63% per year, before capital gains tax. This is more than peanuts, though less than caviar.

It is ironical that when the bull markets since the 1942 or the 1949 lows were still in an unknown future, it was possible to buy the great capital gains of this future on a liberal yield basis. During 1942, tax-exempt bond yields ranged only from 72% to 97% of net stock yields, for the \$35,000 taxable income, and only from 40% to 53% for the \$7,000 income. During 1949, the ratios were rather similar, 82%-94% for the higher income, and 42%-49% for the lower. Now, when the subsequent bull market stock price appreciation is on the record and the rate of its continuation is necessarily conjectural, the tax-exempts offer nearly twice as much net yield, with the excess constituting the equivalent of a modest, but assured, capital gain.

These quantitative changes in the relationship have arisen from several causes. Stock prices during several years of prosperity have outrun earnings and dividends, and gross stock yields have fallen greatly. The growing scarcity of

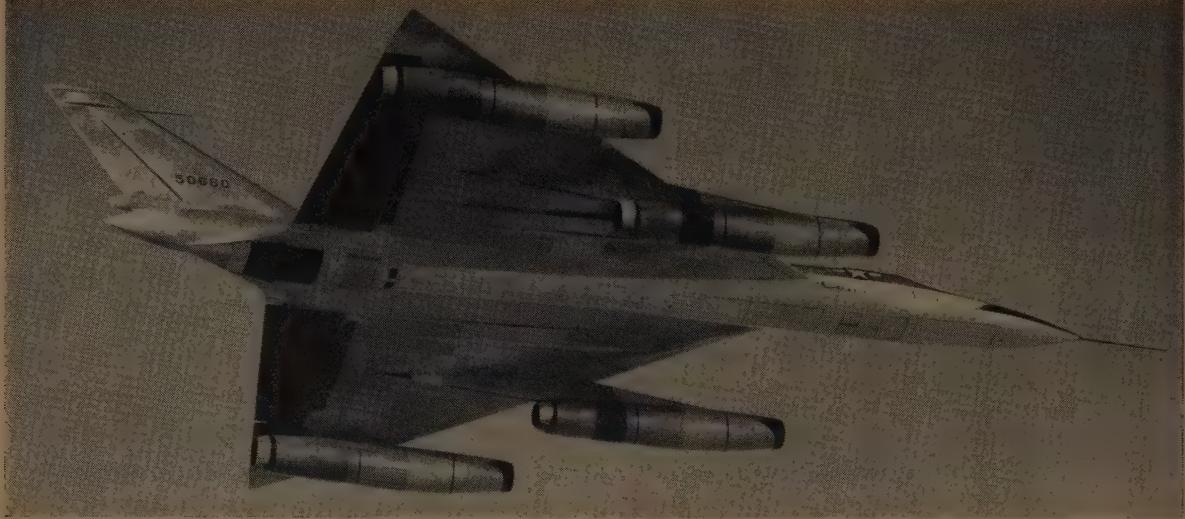
money has brought higher interest rates and bond yields. We may analyze both factors more closely. Institutional investment in equities has experienced a great growth in recent years. Some of this, as in the case of mutual funds, is, from a tax standpoint, on a personal basis. Many other investing institutions, however, either derive benefit from the 85% dividends-received exemption, are taxed rather lightly as a class (life insurance companies) or are fully tax exempt, as in the case of pension funds and profit-sharing plans. The various lightly-taxed or exempt types of investors have had an increasing advantage over individuals, as surtax rates rose. This growing advantage has applied both to income and, in several cases, to capital gains taxes.

Buyers of all types of bonds have benefited from higher yields, but here the long-term rise in tax rates has, enhanced the desirability of tax-exempt bonds to the individual. Still another aspect is that the volume of tax-exempt or low-taxed funds in the investment markets is now so large, growing so rapidly, and so unaffected by taxes, that the large volume of municipal bonds being brought to market must be offered at yields more closely approaching those of taxable corporate issues than formerly. It is axiomatic that the greater the proportion of total new investments that must be brought by those to whom tax exemption is no advantage, the smaller must be the average differential in gross yield between taxable and tax-exempt bonds. But tax-exempt bond yields that are being "pulled up" toward corporate yields, are also being pulled up closer to gross stock yields. Precisely the same rising tide of low-taxed and tax-exempt investment money that competes advantageously with individuals for equity securities, in turn gives the individual an advantage today in his purchase of tax-exempt bonds, because tax exempt money finds no special advantage in tax exempt securities.

It seems highly probable that the volume of tax-exempt new issues will continue high, considering the magnitude of present and foreseeable needs for public facilities. Under existing conditions, tax-exempt yields may move still higher, with consequent market price depreciation of outstanding issues. Unless the decade of the 1950's is to set a new all-time record for sustained near-capacity production, however, one may reasonably expect some ultimate reversion to higher stock yields, easier money and lower bond yields. This will not necessarily involve either stock price declines or bond price rises, from their respective current levels. It remains true, that on a yield basis alone, and at a time of unusually low economic visibility, tax exempt bonds offer more to the individual stock investor than at any time during the past 22 years.

* * *

"Variations in the 'yield' of loans of the same grade but of different maturities would seem not only to offer conclusive evidence that 'yield' should be thought of as an average, but also to throw some light on the implicit interest rates for successive years."—
Frederick R. Macaulay



The graceful, deadly-looking Convair B-58 Hustler is the world's first supersonic bomber. Its speed is still secret, but designers admit that this hot bomber is built to resist searing heat when it pushes its nose into the thermal barrier.

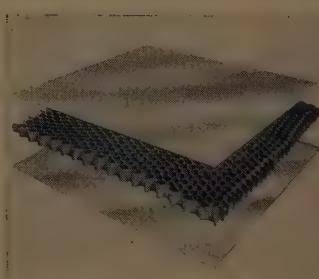
Special Armco Stainless Steel solves "hot skin" problem in world's fastest bomber

Sweeping advances in military aircraft performance have called for the research, development, and mass production of special new stainless steels. These metals not only have to withstand intense heat but also shrug off the terrible stresses of supersonic flight.

Armco Steel Corporation, one of the world's largest producers of special

steels, is supplying the new stainless steel that helps make it possible for the B-58 to operate beyond the sonic wall.

The need for new metals is by no means limited to the military. Armco development of special steels, to do special jobs, has created new markets in many industries. It has been a significant factor in Armco's steady growth.



Cross section of the "skin" of the B-58. A thin honeycomb layer is sandwiched between two gleaming sheets of stainless steel in critical parts of the bomber. This special steel (Armco 17-7 PH) was developed by the research division of Armco Steel Corporation.

← Stainless steel by the mile. Armco facilities for producing stainless steel work at capacity to meet the demand. The vast aircraft industry is now the second largest user of stainless steels.

ARMCO STEEL CORPORATION

MIDDLETOWN, OHIO



Water and Securities

FRANCES STONE

IN RECENT MONTHS, newspapers and magazines have headlined the problem of an adequate supply of usable water. The five year drought in the Southwest, and now the floods, have been the motivating reason for the avid attention to a difficulty that has been becoming progressively more serious, and in a relatively few years, may turn out to be a desperate condition. To clear away the confusion engendered by the hue and cry, the "water problem" must be broken-down into its components.

Basically, there are three elements: One, is an adequate supply of usable water available? Two, what is the optimum division of this supply among multitudinous uses? Three, how are sewage and industrial wastes to be treated? For investors a fourth component is in order: How can the purchaser of common stocks participate?

THEORETICAL MAXIMUM SUPPLY OF WATER IN U. S

The total precipitation in the United States is calculated at 4,300 billion gallons daily in rain and snow. Of this total about 3,000 billion gallons daily are lost through evaporation and transpiration. Of the remaining 1,300 billion gallons daily average, about 1,145 billion gallons daily average are returned by streams to the ocean. It is this amount that is potentially available for expansion of water supply, with certain limitations. A portion of this flow must be preserved for navigation and for disposal of industrial and domestic wastes. The ultimate supply of water is limited. This limitation is not serious at the present time, as water use is projected by 1975 to be less than 50% of the 1,145 billion gallons daily average amount that is returned to streams.

DISTRIBUTION OF PRECIPITATION IN UNITED STATES

The supply of water in the United States is unevenly distributed. The major portion of the rainfall occurs in the eastern part of the country. Some eastern areas have an average rainfall of 60 inches per year; whereas, some western states average as low as 7 inches. Thirty-one states east of the Great Plains have average rainfall of 40 to 50 inches; seventeen states in the west, 10 to 20 inches. The disparity between the two areas is an indication of the extensive problem of planning adequate utilization of available supply. The amount of rainfall is not equally spread throughout the year. In effect, the flow of water to streams is concentrated in one-third of the year. Provision needs to be made to trap the water when and where available, so that it may be on hand throughout the entire year and for all the country.

Water is drawn from both ground and surface sources. Surface water is the most usual source, about 85% of total utilized. Estimates of the amount of ground water indicate that the supply is substantial. In fact, it is regarded as in excess of surface supply.

The amount of ground water now utilized is small—in

1955, 31.48 billion gallons daily average out of the total water used of 203.10 billion gallons. Ground water is projected to provide 69.37 billion gallons by 1975 out of 453.08 billions.

ARTIFICIAL EXTENSION OF SUPPLY

Some experiments have been conducted in order to augment the amount of usable water and to retain the maximum volume in impounded areas. Some of these attempts include chemical inhibition of evaporation, brackish and salt water purification, and recharge of wells.

Water that is stored in reservoirs in dry areas is subject to a high rate of evaporation. In some areas, the loss may be two to four feet or higher per year. Experiments are being conducted in Texas to determine the effect upon the taste and usability of the water after the addition of an evaporation retardant. The successful conclusion of these experiments could add a substantial amount of usable water to the available supply.

The ocean is an inexhaustible source of water. A subsidiary, but very extensive source, is brackish water. Sea water contains about 290 pounds of salt per 1,000 gallons; brackish water about 29 pounds. The problem in the conversion of saline water to fresh water is to devise an economically feasible process. Costs of conversion, until very recently, were extremely high. During the past few years, the Government has accelerated its efforts in this area.

Although costs of conversion have been reduced in recent years, a comparison with the current cost of water highlights the difficulties in the use of this source. Government and private experiments have succeeded in reducing the cost of conversion to about 60 cents per 1,000 gallons for sea water and to 40 cents per 1,000 gallons for brackish water. In some areas, water from usual sources for all purposes costs as little as 1 cent per 1,000 gallons. The usual household average is between 30 cents to 50 cents per 1,000 gallons, but there are places (relatively few, however) where the cost has risen to \$10 per 1,000 gallons.

In areas where ground waters have been pumped extensively, the attempt has been made to restore the level by artificial recharge. The available rainfall comes in a short period and quickly runs off. The recharge of wells by water spreading could restore the wells and secure part of the run-off for later use.

POTENTIAL DEMAND FOR WATER

There are four large categories of water use, aside from navigation and recreation: namely, irrigation, domestic, industrial, and steam electric generation. In 1955 estimated total water use was 262 billion gallons daily average. Of this amount, irrigation took 46%, public water systems 6%, domestic use 2% (self-supplied), industrial 23%, and steam electric power generation 23%. By 1975 the Department of Commerce has forecast that total use will have al-

most doubled to 453 billion gallons daily. However, the allocation is expected to change. Irrigation's relative share will fall to 37.5%; public water systems up to 6.6%; domestic use (self supplied) grown slightly to 1.9%; industrial up to 25%; and steam electric power up to 29% now the largest rise in use of water. The following table shows the distribution of demand for water for 1900 to 1975.

Estimated United States Water Use 1900-1975

Irrigation	Public Water Supplies	self supplied			Total Water Use	
		Domestic	Industrial Misc.	Steam Electric Power		
1900	20.19	3.00	2.00	10.00	5.00	40.19
1940	71.03	10.10	3.10	29.00	22.20	135.43
1945	83.06	12.00	3.20	48.00	28.80	175.06
1950	100.00	14.10	4.60	46.00	38.40	203.10
1955	119.84	17.00	5.40	60.00	59.80	262.04
1965 est.	148.07	25.00	6.50	87.70	92.20	359.47
1975 est.	169.68	29.80	7.20	115.40	131.00	453.08

Source: Water & Sewerage Industry and Utilities Division, U. S. Department of Commerce, 1955.

Irrigation of cultivated lands developed very rapidly in the more arid regions of the West, but increasingly, the practice has spread eastward. One of the first recorded instances of the use of irrigation in the United States was in Colorado in 1832. By 1900 more than 7.5 million acres were under irrigation. The growth in the next 50 years was more rapid increasing to 24.9 million acres. Of this amount 1,500,000 acres are in eastern states, primarily in the South for the growing of rice. In 1955 irrigated lands totalled 29.5 million acres.

According to a 1950 Census of Agriculture average quantity of water delivered to farms rose from 3.1 acre-feet in 1940 to 3.3 in 1950 per acre. The cost of water rose faster going from \$2.57 to \$5.48 for the same period. The more than two-fold cost increase is explained by higher costs of constructing new irrigation projects and the need for pumping water from greater depths or from longer distances.

The use of irrigation is expected to spread. The benefits to be derived from the use of planned watering are undisputed in both the dry areas of the West and in the wet sections of the East.

The investment in equipment for irrigation includes dams, reservoirs, canals and ditches, pumps, wells, motors. The average investment per acre was estimated at \$72 per acre in 1950.

PUBLIC WATER SUPPLY SYSTEMS

The supplying of water through public systems was one of the earliest industries in the United States, starting with a supply system in Boston in 1652. This system provided water for domestic use and firefighting. The service area was limited to one street. In 1750 in Pennsylvania the first system to serve a community was in operation. In 1754 the first pumped public supply system went into operation. A few other systems of various kinds were inaugurated in 1748 and 1796. By 1800, 17 systems were in operation, 83 in 1850, 4,000 in 1900, over 15,000 in 1950, and 17,500 in 1955. The rise in number of people that utilize public

systems has been more spectacular. In 1900, 30 million people were dependent on public water supply systems; in 1955, 111 million people. The amount of water that has been provided by public water supply systems rose from 3 billion gallons daily average in 1900, to 17 billion in 1955, almost six times as much water versus a less than four times rise in number of people. The following table brings these figures down to the individual level and indicates future growth in use.

Per Capita Consumption by
Public Water System Customers

Year	Number of Gallons Daily per Capita Water Use
1900	95
1945	136
1950	142
1954	152
1965	190
1975	200

Source: U. S. Department of Commerce.

The effect upon demand for water of our present state of civilization is evident when the above figures are related to estimates of 20 gallons per person, the minimum necessary to sustain life.

Industrial use of water is one of the most important. It shares second place on the basis of volume with the use of water for steam electric generation. The use of water for industrial purposes has been growing at an extremely fast pace, from 10 million gallons daily in 1900 to 29 billion in 1940. By 1955 as a result of changes in products and processes, water use rose to 60 billion gallons, and by 1975, utilization is estimated at 115 billion gallons daily. The development of new water-using products has progressively raised the volume of water. The production of synthetic fibers and rubber, petrochemicals, and plastics, requires large amounts. The quantity that is actually utilized is dependent upon the amount of reuse for which a plant has been designed.

As an indication of the amount required, a large steel mill may use 500 million gallons daily. This amount is sufficient for a city of several millions. In some new steel plants, arrangements are made to use treated water from the local sewage plant.

Although the prime function of water in most industrial processes is cooling, therefore not actually used in the product, a large amount of fairly clean water must be available, so as not to ruin machinery with scaling or corrosion. Where the water is actually used in the process, it must be purified.

STEAM ELECTRIC POWER GENERATION

The last category of water use is the cooling and condensing in the steam generation of electricity. For each kilowatt hour produced in thermal generating stations, 75 gallons of water are needed, according to a survey in 1954 by the Department of Commerce.

The rise in the use of water for this purpose has been very rapid. From 5 billion gallons daily average in 1900 to

26.9 billion in 1950, 38.4 billion in 1955 and the projection for 1975 places it at 131 billion, 26 times the 1900 level. Prospects for the future are related to the expansion in use of electricity. Electrical use has grown from 2 1/2 billion kwh in 1902 to 329 billion in 1950, 546 billion in 1955. The forecast by the Federal Power Commission for 1975 is 1,419.5 billion kwh.

A discussion of water and electrical energy is incomplete without consideration of hydroelectric power generation. The use of available hydroelectric sites for power generation is bound to all uses of water. In turn this broad consideration of water utilization is involved with analysis of river basins. Through this widened outlook, the development of water sources encompasses the coordination of watershed area development, of steam control to eliminate floods, of protection for fish and wildlife, of preservation for recreation, with provision of adequate, unpolluted water for domestic, industrial, electrical power, and agricultural needs.

TREATMENT OF POLLUTION

The third side of the water problem is the treatment of water to make it usable. In many ways this is the most vital. For adequate treatment of water assures a sufficient supply for all uses. The same quantity of water may be employed again if pollutants have been removed. This is particularly true of water drawn from streams and rivers that touch wide areas.

The list of processes for water treatment is extensive. Purification can be accomplished in a variety of ways. Early systems did not provide for treatment. The first treatment plant in the United States, a slow sand filter plant, was built in 1879, in Poughkeepsie, New York.

Excluding industrial treatment plants, the largest single kind is the simple disinfection plant; next; the rapid sand purification. Liquid chlorine is used in the largest number of installations. A few small communities that utilize groundwater do not have to treat it.

INDUSTRIAL WASTE

Domestic wastes are not the most troublesome. Treatment facilities can be built to handle these if natural processes are inadequate to handle the volume. The discharge of industrial wastes is more troublesome since treatment processes in many instances are unknown. Some industrial wastes do no more than heat the water in the river, but others are noxious and offensive. The present need is for constructing adequate treatment facilities for domestic sewage and for devising methods to treat industrial wastes.

Early sewerage systems did nothing more than collect and transport sewerage to an available watercourse. If the receiving body was large enough, the bacteria in the water decomposed the organic material, and it disappeared. Later however, the capacity of the available water to provide oxygen was exceeded; undigested wastes accumulated, and plant and animal life was destroyed. The end result was "an open sewer."

Treatment of waste involves one, the removal of solids; two, elimination of all the oxidizable organic solids by trickling filter or activated sludge process. The filter

method is older and is utilized in plants that are located in areas where space is available. Many new plants now employ the activated sludge process, as it is more efficient, provides an organic fertilizer, and requires relatively little area.

The need for public sewerage systems closely parallels the development of cities. In the early nineteenth century, sewer lines were privately owned and served a small group of buildings. The first really comprehensive system was for Chicago in 1855. In 1860 there were 10 systems serving 1,000,000 people out of a total community population of 3,500,000. These very early systems were of the combined type, and handled sanitary and storm water wastes.

In 1955, 12,500 systems were operating and serving 100,000,000 people. Growth in systems has been rapid and is expected to continue in the future to cover 134,000,000 people.

Affirmation of the need for pollution control is readily evident in the Federal Water Pollution Control Act approved on July 9, 1956. This law strengthens a 1948 act. The important provisions in the present law are the enforcement measures against pollution of interstate waters. The Federal Government may come into a situation if a state on a stream complains of pollution from another state on the same watercourse. The law was fought by various trade associations, but upheld by public groups and conservationists.

This statute provides grants for research in pollution control and waste treatment processes, and \$500 million in grants over ten years to help cities build sewage treatment plants.

With this congressional action, the Federal Government is more firmly established in the pollution control program. The need is clearly evident.

PARTICIPATION OF STOCKHOLDERS

To make all of the foregoing pertinent, the fourth question, as to opportunities for investors, must be explored. The media by which the investor participates in the solving of the "water problem" are through the stocks of the companies that manufacture the equipment to retain the water, to transport it long distances, to treat it in order to permit use, to meter it to prevent waste, and finally to remove pollution in order to bring the used water back into the cycle.

To secure the projected volume of water, will require initially the undertaking of large river basin developments throughout the United States. These will provide water for all uses: power, conservation, recreation, irrigation, domestic, electrical generation, and industry. The initial beneficiaries would be the construction and engineering firms (such as Merritt-Chapman & Scott, Stone and Webster, Electric Bond & Share's subsidiary Ebasco Services). The cement companies will secure substantial business, (Lone Star Cement, Lehigh Portland, Ideal Cement, Penn Dixie Cement, U. S. Steel, American-Marietta) since such structures consume substantial tonnages.

To supply water for irrigation, domestic, industrial, and power purposes will require very large expenditures. The following tabulation provides a summary of some estimates.

Estimate of Costs for all Water Developments Projects

	(Millions)
Waterways & Port Development	\$ 7,500*
Flood Control	15,000*
Irrigation	10,000*
Hydroelectric Power	30,000*
Domestic & Industrial Water	56,000†
Pollution Control	57,000†
Fish & Wildlife Conservation and Recreation	1,250*
Total	\$177,450

Note: Figures marked with * derived in 1950 prices for a 50 to 75 year program by U. S. Army Chief of Engineers. In actuality, these may now be considered a 20 year program because of the recognition of the increased urgency and the approximate 25% rise in construction costs since 1950.

Figures marked with † are for a 20 year program in 1954 dollars. These estimates by various U. S. Government Departments.

For long range irrigation program, 50 to 75 years from 1950, estimates have been made that 16.7 million new acres and 8.7 million acres for supplemental water supplies are to be brought into the system. The cost of this program may be \$10 billion.

For the provision of water for domestic use via public systems, a program designed for the next twenty years, as estimated by the U. S. Department of Commerce, would require \$19 billion. This figure includes \$4 billion in order to renovate facilities which a 1954 survey of water facilities indicated one-half of the total needed improvement and enlargement, as facilities in use were in poor condition. Consequently merely to restore facilities to the level of 1940 would require a large investment.

To remove domestic sewage and to eliminate the pollution danger, public sewage systems must first be brought up to modern condition through the investment of almost \$7 billions. To provide for future growth and to modernize existing capacity, a total of \$23.0 billion of public sewage system construction will be needed over the next 20 years.

Water for industrial and steam electric generation purposes is generally self-applied, in many instances from wells. For an adequate program, about \$32 billion is estimated as necessary to supply the water for all of the various industrial and power purposes.

Industrial waste elimination will require a growing expenditure of funds despite the reluctance of the companies. Estimates of the cost of such plants have ranged from \$4 1/2 billion through \$7 1/2 billion up to \$22 billion.

The volume of well construction for rural and industrial water provision from 1900 to 1955 was estimated at 110,000 per year. In 1950 to 1955, however, 400,000 to 480,000 per year were drilled. These added from 125,000 to 200,000 to existing supply, and the remainder replaced wells that become inoperable. Total cost of new wells in these years ranged from \$350 million to \$475 million per year.

To secure additional ground water a total of 400,000 wells per year will have to be drilled at a cost of about \$400,000,000. This would provide 270,000 replacement wells and 130,000 new sources. For well supply companies, the estimates presage continued high volume business for

many years. The actual drilling of wells is generally done by local contractors; drilling machines are produced by companies such as Bucyrus-Erie Co., Stardrill-Keystone Co., and Dresser Industries.

Total expenditure for all rural water and waste expenditures is expected to be \$15 million.

Aside from the companies noted, corporations that will secure the most substantial gains from this program will be pump, valve, meter, pipe and treating companies.

The potential impetus of this program is tremendous when compared with the present construction rate of about \$2 1/2 billion per year. Under such a program, pump and valve sales could easily double; pipe sales could be even more sharply affected; treating company sales may be substantially increased, since the need for treatment plant is most urgent; and meter sales will continue the present steady upward trend.

SUMMARY

To participate in the program of sewer and water construction over the next ten years, a holding in a small meter, pipe, well supply, or treatment company is most likely to provide the biggest return. A larger percentage of the total business is derived from the sale of equipment for water-works construction. For the company that produces either a wide variety of products, such as the highly diversified corporation or the large company in the pump industry that sells its products to a wide variety of users, the increase in business will add a minor amount to income.

In judging prospects for individual companies, the most fruitful method is to consider them as integral parts of the construction industry. On this basis, the outlook for such companies is regarded as excellent. Annual increase in aggregate activity may not be as steep as in prior years. Residential construction in 1957 may dip slightly, but the total level of building will be maintained, and is expected to rise slowly over the next ten years. Total new construction will rise at 15% a year and expenditures for conservation projects, irrigation, flood control, will grow 20% in the next few years, and moderately thereafter.

In the assessment of prospects, the high projected levels for construction of industrial plants, electric generating stations, and the highway program provide sound foundations for rising sales. Consequently, water-moving apparatus suppliers are assured to a large extent of increasing sales over the next ten years. This is in contrast to the fairly cyclical past record of these companies. The change to more stability of income will be fully evident in the next few years. With this awakening, a new standard for valuing such stocks will develop.

The quality of stocks within the various groups is highly variable. Many sell at high yields and low multiples of earnings. In certain instances this condition is the result of poor income reports during recent years, of the low appraisal of income of cyclically characterized industries, or of the limited marketability of a small company with a moderate amount of stock outstanding. For many of these companies, price earnings ratios will rise as the stability of high income becomes apparent. Two factors—better income results and higher valuations—will tend to raise their prices.

Chedo Chuckovich

He's one of the few who got a second chance

I'M CHEDO CHUCKOVICH, lucky to live in America.

"For I have also been Chedo Chuckovich, man without a country.



"I was born in Belgrade, Yugoslavia. My father was co-owner of the Serbian-American National Bank. I had been educated in schools in France and Switzerland, and planned on a career in diplomacy.

"When I was 17, the Germans invaded my country. I fled with my family into the hills, and joined the guerrillas. My father was killed. My brother was killed. I was wounded and taken prisoner, and starved for five years in a Nazi concentration camp.

"Two weeks before the war's end, the Canadians freed me. My family was dead or scattered. Our property had been



CHEDO, AFTER CONCENTRATION CAMPS

confiscated. The Communists had taken over Yugoslavia. I was a man without a country.

"But I was one of the lucky displaced persons. Unlike so many of the others, I got to America, and a new start.

"Today I am in business for myself, a Union Oil dealer in Pacific Palisades,



CHEDO CHUCKOVICH: "YOU CAN'T TAKE YOUR FREEDOM FOR GRANTED."

California. I have money in the bank, a home, a car. I have the respect of my neighbors. I have friends and a future again. I will soon be an American citizen.

"I will work at my citizenship because I learned the hard way you can't take it for granted. You have to earn it.

"I know, because I'm one of the few who got a second chance at freedom."



Chedo's life underlines a basic truth, we believe: Wherever men would remain free, they must remain alert.



For any concentration of power in the hands of a few—whether they be business men, financiers, industrialists, government officials or labor leaders—is, inevitably, at the expense of the majority.

YOUR COMMENTS ARE INVITED. Write: The Chairman of the Board, Union Oil Co., Union Oil Bldg., Los Angeles 17, Calif.

Union Oil Company of CALIFORNIA

MANUFACTURERS OF ROYAL TRITON, THE AMAZING PURPLE MOTOR OIL



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see America the BOUNTIFUL

VISIT BUTTE, MONTANA—"THE RICHEST HILL ON EARTH"—
AND SEE HOW THE ANACONDA COMPANY MINES THE METALS
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Seeing the America that's *Bountiful* as well as *Beautiful* can be an interesting part of your vacation itinerary. This summer if you plan to take in the scenic spectacle of Yellowstone Park, you will be within easy driving distance of Butte—home of The Anaconda Company and for over 70 years one of the world's most spectacular producers of copper and other important metals.

Butte sits atop a veritable honeycomb of tunnels, shafts and passageways totaling some 2700 miles in length. More than 6500 of its residents are employed by Anaconda in extracting the seemingly inexhaustible mineral wealth of a 32 square-mile area whose output increases year after year.

On guided tours you can go underground in the Kelley Mine and see how 15,000 tons of ore a day are mined by the ingenious block-caving method. You can stand on a ledge 500 feet above the floor of the new Berkeley "canyon," illustrated above. This is a giant open pit operation now nearing an output of 17,500 tons of ore daily. Or, if you wish, you can "do" Butte, the city and its mines, on your own schedule. The Anaconda Company will be glad to send you a do-it-yourself map and guide to a memorable tour of the famed "Copper Trail." Simply write the Company at Butte, Montana.

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Gold

B. BARRET GRIFFITH

BY THE TIME OF THE 1960 elections, foreign claims may equal the amount of our monetary gold reserves. Insofar as American citizens are concerned managed paper money will have completely and entirely replaced any semblance of hard money.

Twenty-five years of increasing federal budgets and spending by the political party in power has certainly established a trend, which also permeates state and local governments. High debts and increasing rates at all levels of finance may mark the approach to the limit of debt and borrowing—and indicate that we may be "borrowed up." If total direct and hidden taxes are consuming around 36%

of each individual American citizen's annual income, it may indicate that we are about "taxed up." Personalizing the statistic for cost of living, most of us agree that our taxes and the cost of food have trebled within the last 25 years and we know that \$20 gold pieces today cost us around \$60 for our coin collections. By these measures, apparently, we have a 35 cent dollar compared to some 25 years ago. Problems arise in government finance when a high-spending nation cannot readily borrow, tax, or issue more paper money.

When studying the table, accompanying this article one could reach the easy and obvious conclusion that things are

U. S. Gold Reserve vs. Requirements and Potential Claims
1922-1956 (in millions of dollars)

End of Year	U. S. Gold Reserve	U. S. Required Gold Reserves	A		Total of A and B
			Foreign Dollar Balances	Short-term Balances	
1922	\$ 3,506	\$ 1,686	\$ 1,009		\$ 2,695
1923	3,834	1,652	990		2,649
1924	4,090	1,599	1,237		2,836
1925	3,985	1,558	1,193		2,751
1926	4,083	1,564	1,639		3,203
1927	3,977	1,624	2,591		4,215
1928	3,746	1,621	2,673		4,102
1929	3,900	1,611	2,673		4,284
1930	4,225	1,562	2,336		3,897
1931	4,052	1,781	1,304		3,085
1932	4,405	1,967	746		2,713
1933	4,012	2,166	392		2,558
1934	8,259	2,729	670		3,399
1935	10,124	3,610	1,301		4,911
1936	11,422	4,101	1,623		5,724
1937	12,790	4,170	1,893		6,063
1938	14,591	5,099	2,158		7,257
1939	17,800	6,354	3,221		9,575
1940	22,042	7,897	3,938		11,835
1941	22,761	8,310	3,679		11,989
1942	22,739	9,977	4,205		14,202
1943	21,981	11,902	5,375		17,277
1944	20,631	14,350	5,820		21,170
1945	21,083	10,868	7,074		17,942
1946	21,706	10,731	6,481		18,429
1947	22,868	11,294	7,135		17,212
1948	24,399	11,894	7,756		19,650
1949	24,568	10,753	7,623		18,376
1950	22,820	11,055	9,222		20,227
1951	22,873	11,720	9,302		21,022
1952	23,252	12,055	10,731		22,786
1953	22,090	12,151	11,771		23,922
1954	21,793	11,812	12,923		24,735
1955	21,752	11,975	13,580		25,555
1956	22,058	12,120	16,428		28,548

bad for our Treasury because monetary gold reserves are insufficient to cover domestic gold reserve requirements plus foreign claims against our gold reserve. The situation is not good, but it would be questionable to conclude that foreigners (institutions if you will) would all demand that their good hard American dollars be redeemed. Let us look at the picture of our gold reserves and the claims that are against those reserves.

SINCE 1933

In 1953 claims (total of columns A and B) exceeded our gold reserves by about \$2 billion; in 1954 they were \$3 billion higher; in 1955 about \$4 billion higher; and at the end of 1956, claims against our gold stock were around \$6 billion more than our reserves. Our liabilities are increasing during recent years and our gold reserves are barely holding their own. More informative to a judgment may be a note that since we went off the gold standard in 1933 (as far as American citizens are concerned, not foreigners), U. S. required reserves have increased five-fold and foreign claims against our gold stock have increased forty-fold. Since 1953 it has meant little, apparently, that U. S. gold reserves are insufficient to cover domestic requirements plus foreign claims. It may be quite another matter when foreign claims alone exceed the present value of our gold stock. Sometimes in analysis of things financial, in this case monetary gold reserves compared to real and potential claims against those reserves, it is helpful to try to personalize the study. Gold reserves are not unlike personal insurance and potential claims against our gold reserves are not unlike the ever-present possibilities intended to be covered by insurance.

On a clear day, even the reserve of a tattered umbrella looks to be and is superfluous protection. A robust person always regards life-insurance premiums as an unnecessary

cost. House fire-insurance premiums are always too high and the amount of fire insurance is always too low when fire-burning lightning strikes. Similarly, the present gold reserves of the United States, these sunshining days of summer, seem excessive. Some would trade what we have left and increase our short term liabilities for the promising long term investments in foreign lands. Looking at the fool's gold of inflation, some would step up both our exports of dollars and depleting raw materials to foreign lands. Gold reserves in this country are thought by some to be more than sufficient because they amply cover potential demands of foreigners and Americans do not have the right anyway to own gold, or redeem their dollars in gold.

BEFORE 1960

The facts of our monetary gold reserves and claims against those reserves plus "human nature being what it is" together suggest that either concluding that foreigners will shortly redeem their dollars to our embarrassment, or that our present gold reserves are excessive is incorrect. As in most things, a middle and unexpected course is more likely to be seen. Applying this optimism to the monetary picture would suggest that before the 1960 elections, we may see (1) an attractive U. S. Government bond offered to foreign institutions to tempt them from their present hard dollar holdings, (2) a free market for gold may be seen and permission given to Americans to own and buy gold and gold coins, (3) the Treasury may show reluctance to sell gold at \$35 per ounce and thus raise the price of gold even substantially, but accomplish this adjustment quietly instead of violently through outright devaluation of the dollar. Obviously, and in any event the prospects for necessary adjustments in the now unfavorable monetary situation sometime during the next several years warrants investment consideration of the golds.

STANDARD BRANDS

Incorporated

COMMON STOCK DIVIDEND

The Board of Directors declared a quarterly dividend of 50c. per share payable September 16th to stockholders of record on August 15, 1957.

PREFERRED STOCK DIVIDEND

The Board also declared a dividend of 87 1/2c. per share payable September 16th to stockholders of record on September 2, 1957.

John B. Noone
Secretary and Treasurer

July 25, 1957.

AMERICAN ENCAUSTIC TILING COMPANY, INC. Manufacturers of Ceramic Wall and Floor Tile											
COMMON STOCK DIVIDENDS Declared July 24, 1957											
Cash: 15¢ per share Payable August 30, 1957 Record Date August 16, 1957											
Stock: 4% Payable December 16, 1957 Record Date November 15, 1957											



OUTBOARD MARINE CORPORATION

DIVIDEND NOTICE

A cash dividend of twenty cents (20c) per share on the Common Stock of the Company has been declared by the Board of Directors, payable August 23, 1957, to stockholders of record August 7, 1957.

H. M. FISHER, Secretary

July 23, 1957

The Fetish of Youth in Management

RALPH A. BING

THE DEARTH OF QUALIFIED EXECUTIVES is constantly being bemoaned by private business and Government. It is true that the country is making a creditable effort through education and regulations to reduce some of the undesirable employment practices that tend to aggravate the scarcity of available personnel. However, at the same time, we are busily creating another artificial barrier that could deprive us of countless persons qualified to work in the upper (and lower) echelons of business.

I am referring here to the fetish that is being made of chronological youth as a prime ingredient in successful business management. "Young and aggressive" has become a catchword used not only in thousands of daily want-ads, but also in many snap appraisals of the quality of company managements. As a result, some company executives have become as coy about age as ladies, and vie in efforts to convince the financial community that their management team is "young and aggressive."

The assumption underlying that catchword is, of course, that a chronologically young executive is also likely to be "aggressive," and that being both "young and aggressive" is almost synonymous with being efficient and successful; the inference is also that the inverse is likely to be true for the executive of more advanced age.

CHRONOLOGICAL AGE AS A YARDSTICK

Chronological age seems to be a rather primitive, quantitative yardstick not much more meaningful than measuring a man's managerial ability by his tallness in inches, or appraising the artistic merit of a painting or a building by their square footage or by their production cost. It is remarkable how easily the human mind can accommodate conflicting notions and experiences side by side without making any corrections. If it is permissible to oppose a fallacious catchword with some commonplace experience, one might point out that business executives in their 50's and 60's, while on the average possibly somewhat less "aggressive" than the younger ones, normally have the advantage of greater experience and maturity of judgment on their side. The glorification of mere dynamic power implies a rather naive underrating of intelligence and wisdom, which must give direction to such power to make it constructive and useful.

It is true that for a while psychologists seemed to lend some support to the cult of the young versus the aged when they argued that a man's intellectual faculties—as indicated roughly by standard I.Q. tests—would begin to decline around age 25. However, more recent long-range studies in the field of psychology, based on periodical re-testing of certain groups of individuals, have reversed those earlier notions and point to strong evidence that intelligence continues to grow until at least around age 50 (on an average) in groups composed primarily of superior adults. (Nancy

Bayley, "On the Growth of Intelligence," *The American Psychologist*, Volume X, No. 12, December, 1955, pages 816-817).

Furthermore, emotional roadblocks to the full development of the personality are not infrequently overcome only in the later years of life, thereby freeing additional energies for constructive activities. Finally, physicians have of course testified to the wide differences in the physical processes of aging in persons of identical chronological age.

In sum, the only clear-cut statistically proven advantage of the young executive over the older one is his longer actuarial life expectancy. Hence, in order to assure the continuation of a business management, qualified men in their 30's and 40's should indeed be among the second and third-line executives, ready to move into the top ranks of management in due time.

STATISTICAL INDICATIONS

In view of the many factors that may tip the balance in favor of success or failure for any individual company, it may be doubted that the influence of the age factor in top management could be statistically identified and related to the extent of business success—even if there were such a basic connection between the two of them. On the other hand, if it can be demonstrated that an impressive number of leading growth companies, in a variety of industries, have been guided by managements that have not been characterized by chronological youth, this would certainly tend to lend support to the thesis that, generally speaking, chronological age is not likely to be a prime influence on a management's caliber and drive.

Notions of who is "young" or "old" in management are somewhat flexible, and tend to shift as one grows older. However, it may be assumed that most people, speaking of a "young" management, have in mind top-level executives in their 40's or below, and would classify executives in their late 50's, 60's, or above, as mature to old.

Tables Nos. 1 and 2 present age data on the management of seventeen companies which are among the acknowledged leaders in twelve different major industries. The fine caliber of the management and the growth record of each of these companies, I think, are facts beyond dispute. Obviously, this is a relatively small sample of the many companies that have been successful growth companies in the 40's and 50's having out-performed the average of their respective industries in business and profit increases and in profit margins during that period. Yet, the prominence of those seventeen companies lends additional weight to these data, which I believe contain little to encourage the belief in the superiority of chronologically-young managements.

The tables present an age breakdown and analysis of the Boards of Directors, the top executives and the second-line officers of each of the seventeen companies. All data are

MANAGEMENT AGE—Table I

Management	Corning Glass Works	Crown Zellerbach	Dow Chemical	duPont	General Electric	General Foods Corp.	Lincoln National Life Ins
<u>Age as of October 1, 1956</u>							
Chairman of the Board	57	-	76	68	56	-	-
Average of Other Board Members	62	68	56	63	59	63.5	64.4
Oldest of Other Board Members	84	88	77	81	75	79	88
Youngest of Other Board Members	30	51	29	45	39	51	50
President	50	64	62	54	56	56	52
Executive Vice President	64	62	70	58(1)	54	55	-
Average of Other First Line Officers	-	56	61	55	52	51.7	53.5
Oldest of First Line Officers	-	64	77	62	61	63	61
Youngest of First Line Officers	-	37	40	45	46	43	50
Average of Second Line Officers	-	50	45	52	52	46.8	47.2
Oldest Second Line Officer	-	65	57	64	58	60	64
Youngest Second Line Officer	-	41	36	41	41	34	33
<u>Age as of December 31, 1946</u>							
Chairman of the Board	47	71	49	66	47	58	-
Average of Other Board Members	55	63	61	61	59	57.8	63.8
Oldest of Other Board Members	74	78	76	76	80	73	79
Youngest of Other Board Members	40	51	42	41	46	45	45
President	40	54	49	58	60	57	57
Executive Vice President	54	55(4)	-	55(1)	-	-	-
Average of Other First Line Officers	-	57	64	56	54	48.9	52.4
Oldest of First Line Officers	-	78	76	63	66	64	63
Youngest of First Line Officers	-	50	52	46	41	40	42
Average of Second Line Officers	-	56	50	50	56	50	48.3
Oldest Second Line Officer	-	72	62	57	65	61	68
Youngest Second Line Officer	-	44	35	42	47	35	36
% Increase in net sales 1945-55(5)	227%	306%	455%	207%	138%	232%	
% Increase P/Com. Share net. 1945-55(5)	712	294	581	490	255	181	

(1) Average age of vice presidents. (2) Average age of 3 executive vice presidents. (3) President serves as chairman. (4) Average age of 2 executive vice presidents. (5) Individual % increases are roughly comparable only between companies of roughly similar size and industry lines.

presented as of the end of 1946 and as of the end of 1956. Although changes occurred, of course, during that ten-year period, the data should give a pretty good overall picture of the age brackets prevailing during that period in the top managements of these companies.

HIGHLIGHTS OF TABLES

The data presented are self explanatory, but the highlights may be briefly summarized as follows:

1. On the top-policy-making level (Board of Directors, President, and Executive Vice President), we find a strong prevalence of men in the late 50's and in the 60's.

2. None of the seventeen companies shows a prevailing pattern of relatively young top men. It is true that, as of the end of 1946, both Corning Glass and Dow Chemical had Board Chairmen and Presidents in the 40's, but by the end of 1956, of the two companies, only Corning's two top

men were still below the seventeen-company average ages in their respective positions.

3. The average age of the company Presidents and Board members were not very far below the conventional retirement age of 65 (see Table 2, Col. 7); in 1956 the same was true for the average age of the Executive Vice Presidents.

4. The average age of the second-line officers, of 48 to 49 years, was only four to five years below the average age of the first-line officers, excluding the President and Executive Vice President.

5. The average age of members of the Boards of Directors and of first-line officers was slightly more advanced in 1956 than in 1946 (see Table 2, Col. 3); the opposite was true for the average age of second-line officers, probably because in 1946—as an aftermath of the war draft—their ranks still included some older men who, under more normal conditions, might not have been retained as second-line officers.

Minnesota Mining & Mfg.	Monsanto Chemical	National Lead	Sears Roebuck	Shell Oil Company	Standard Oil of Calif.	Union Carbide & Carbon	U.S. Gypsum	I.B.M.	Scott Paper Co.
68	59	56(3)	64	59	54	-	58	66	60
64	58.4	60	58.4	62	58	59	65	84	80
70	75	75	77	85	77	72	82	84	80
56	45	42	42	46	49	45	50	42	42
58	56	56	61	56	60	60	77	42	63
61(2)	-	-	50	47	-	50(4)	57	51(4)	65
53	49	53	51.7	52	55	54	52	46	52
64	62	62	62	60	59	65	54	58	80
43	38	42	37	47	47	44	50	35	34
45	52.1	46	46	51	45	-	47	52	46
53	60	56	62	57	49	-	52	62	54
36	43	40	40	44	36	-	39	45	34
-	49	69(3)	67	56	70	-	73	-	-
55	59.6	58	55	60	55	62	59	62	51
60	69	74	78	76	67	79	69	83	65
48	46	46	32	43	44	47	45	32	38
59	60	69	62	57	44	62	52	73	53
-	-	46	55	46	-	-	48	43	55
52	51.7	58	52.5	50	51	58	47	45	43
59	62	69	62	54	56	62	48	59	56
45	44	52	44	41	48	50	45	35	35
44	46.4	35	42	49	50	-	61	46	43
52	63	38	52	59	60	-	70	52	55
36	34	34	39	42	39	-	46	40	34
344%	448%	218%	216%	212%	272%	147%	293%	298%	555%
763	410	774	330	337	316	255	690	412	464

This hardly seems to add up to a picture of "young" top-managements in a sampling of our leading and most successful companies. Yet the post-war record of these companies leaves no doubt that each of them has been managed "aggressively" and adroitly.

After firing a few salvos at what has become a glib assumption of superiority of "young" management, I hasten to add a few balancing remarks.

First of all, while I do not believe in the qualitative merits of a chronologically-young leadership *per se*, neither would I subscribe to the opposite prejudice. Second, I readily admit that, for the sake of business continuity, the greater life expectancy of younger men makes them desirable as top executives in relatively small and young organizations still lacking second-line executives. By the same token, they are desirable as second-line executives and plant managers, etc., in large organizations.

One final observation: To build up what amounts to an

age prejudice in management can only strengthen the existing widespread prejudice against the employment, on lower levels, of persons in their 40's and 50's. Admittedly, there are other factors involved, such as corporate pension plans, which have made it increasingly difficult for such persons to find employment. That this trend is basically undesirable and potentially harmful to our society has become a widely-publicized, though so far unheeded, commonplace. According to the latest estimates by the census bureau, the United States population in the 1955-1970 period may grow by about 25.4 per cent in the 45 to 64 age bracket, and by some 34 per cent in the 65-and-over bracket, as compared with an increase of only some 12.2 per cent in the 20-to-44 years' bracket.

Based on these estimates, a comparative percentage breakdown of the population's age brackets for 1955, 1970 and 1975 respectively would shape up approximately as in the following table.

MANAGEMENT AGE—Table II

Companies Reporting	Management	(1) Age Over 65	(2) Age 60 or Over 65	(3) Average Age	(4) Highest Age	(5) Lowest Age	(6) Age Range	(7) Average Age Below 65	(8) Highest Age Above 65
<u>Age as of October 1, 1956</u>									
11	Chairman of the Board	3	4	61.4	76	54	22	- 3 1/2	11
17	Average of Other Board Members	2	11	61.6	68	56	12	- 3 1/2	3
17	Oldest of Other Board Members	17	17	79.4	88	70	18	14 1/2	23
17	Youngest of Other Board Members	-	-	44.4	56	30	26	-21 1/2	-9
17	President	1	7	57.8	77	42	35	- 7	12
13	Executive Vice President	1	5	57.2	70	47	23	- 8	5
16	Average of Other First Line Officers	-	1	53.0	61	46	15	-12	-4
16	Oldest First Line Officer	2	13	63.4	80	54	26	- 1 1/2	15
16	Youngest First Line Officer	-	-	42.4	50	34	16	-22 1/2	-15
15	Average of Second Line Officers	-	-	48.2	52	45	7	-17	-13
15	Oldest Second Line Officer	-	7	58.2	65	49	16	- 7	-
15	Youngest Second Line Officer	-	-	38.9	45	33	12	-26	-20
<u>Age as of December 31, 1946</u>									
12	Chairman of the Board	6	6	60.2	73	47	26	- 5	8
17	Average of Other Board Members	-	7	58.7	64	51	13	- 6	- 1
17	Oldest of Other Board Members	15	17	73.9	83	60	23	9	18
17	Youngest of Other Board Members	-	-	43.0	51	32	19	-22	-14
17	President	2	6	56.8	73	40	33	- 8	8
9	Executive Vice President	-	-	50.8	55	43	12	-14	-10
16	Average of Other First Line Officers	-	1	52.6	64	43	21	-12	- 1
16	Oldest First Line Officer	4	10	62.3	78	48	30	- 2 1/2	13
16	Youngest First Line Officer	-	-	44.4	52	35	17	-20	-13
15	Average of Second Line Officers	-	1	48.4	61	35	26	-16 1/2	- 4
15	Oldest Second Line Officer	3	8	59.1	72	38	34	- 6	7
15	Youngest Second Line Officer	-	-	38.9	47	34	13	-26	-18
% Increase Sales 1945-1955									
% Increase Net Per Common Share 1945-1955									
		285.5	555	147					
		454.0	774	181					

Projection of U. S. Population
Percent of Total

Year	Under 20 yrs.	20-44 yrs.	45-64 yrs.	65 and over
1955	36.3%	34.9%	20.3%	8.5%
1970	38.3	31.8	20.6	9.3
1975	37.5	33.1	19.9	9.5

In the next twelve to fifteen years the medium age brackets, which furnish the bulk of our labor force, will continue to decline in numerical importance relative to the total population. If we really wish to slow down the inflationary pressures partly emanating from a scarcity of available labor, we cannot afford to support ill-conceived prejudices that tend to exclude many qualified persons from work on all levels, from management all the way down to messengers.



DIVIDEND

Quarterly dividend No. 146 of \$.75 per share has been declared on the Common Stock of

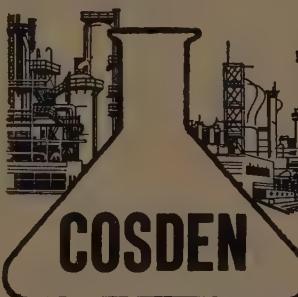
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payable September 10, 1957, to stockholders of record at the close of business August 16, 1957.

RICHARD F. HANSEN
Secretary

July 30, 1957

**Continuous Cash Dividends
Have Been Paid Since
Organization in 1920**



Annual Report Highlights

for fiscal year ended April 30

1957

1956

1955

NET INCOME

Before income taxes.....	\$10,761,190	\$ 7,927,731	\$ 5,602,709
After income taxes.....	6,046,190	4,617,731	3,262,709
Percent of sales.....	8.4%	8.3%	6.5%
Per share of stock.....	\$2.55	\$2.12	\$1.51

SHAREHOLDERS

Shares outstanding—year average.....	2,371,787*	2,176,268*	2,160,276*
Number of shareholders.....	6,785	3,769	3,372
Year-end equity.....	\$32,551,769	\$20,047,391	\$17,301,650
Cash dividends paid.....	\$2,251,012	\$1,573,982	\$979,783
per share of stock.....	\$1.00	\$.75	\$.50
Stock distributions.....	100%	5%	25%

SALES

Dollar volume.....	\$71,921,997	\$55,612,848	\$50,187,453
Refined products and services.....	68,627,419	53,151,719	47,888,260
Crude oil and gas.....	3,294,578	2,461,129	2,299,193

ANNUAL GROWTH

Additions to properties.....	\$16,764,698	\$ 5,952,574	\$ 3,129,193
Crude oil processed—barrels.....	12,528,542	9,902,637	8,517,033
Crude oil produced—barrels.....	1,472,731	1,021,639	932,414
Crude oil reserves—barrels.....	23,444,026	20,262,620	18,584,390
Payrolls.....	\$ 4,918,420	\$ 3,951,776	\$ 3,410,391

*Adjusted for 2 for 1 stock split and stock dividends.

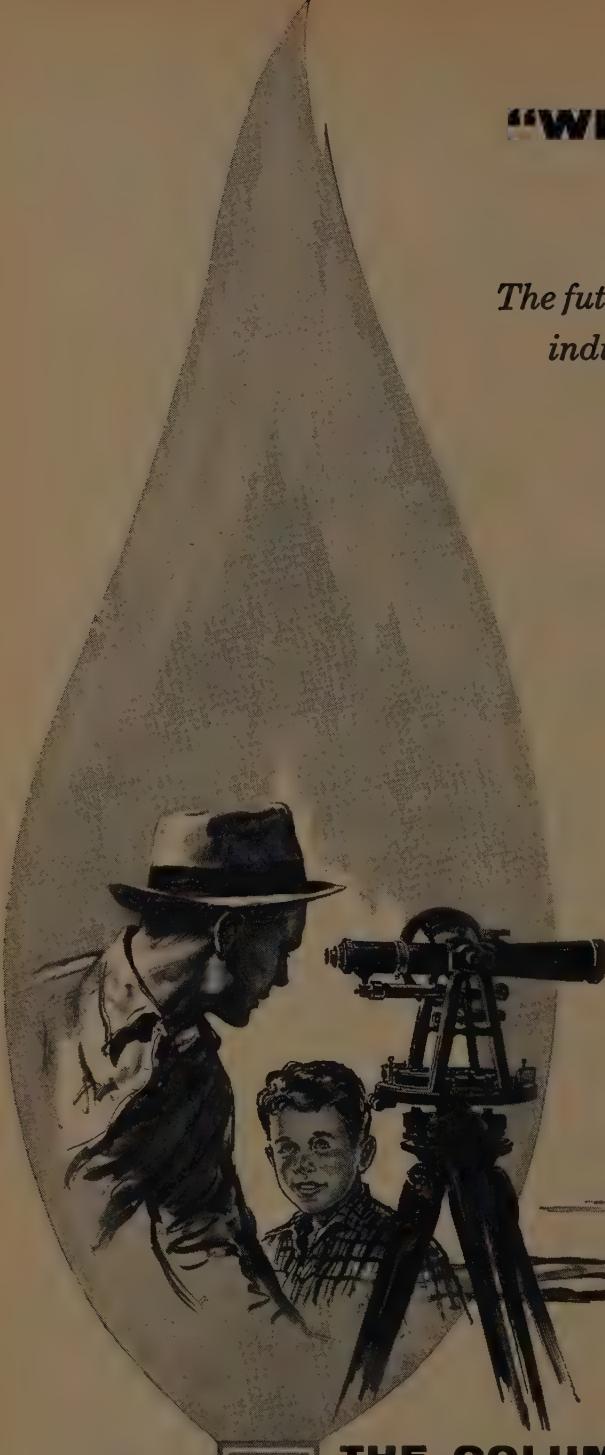
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PITTSBURGH GROUP: The Manufacturers Light and Heat Company, Columbia Gas of New York, Inc., Cumberland and Allegheny Gas Company, Home Gas Company

Business Forecasting

ALBERT I. A. BOOKBINDER

PRACTICALLY EVERY BUSINESS and financial decision must be based upon a stated or implied forecast of economic conditions. For this reason business forecasters seek indicators of future business activity.

The following presentation gives an explanation of a consistent method useful for forecasting successfully general business activity in the United States a year in advance of the actual turning points in the business cycle.

STATISTICAL ANALYSIS

The scope of this statistical analysis is limited to the period from 1919 to date, since not all of the necessary statistical series are available prior to January 1919. Quarterly averages are used in this test, because monthly figures are more subject to erratic fluctuations and semi-annual or annual data are not sufficiently sensitive to variations reflecting changes in the business cycle.

The seasonally-adjusted index of residential construction contracts awarded, used as the first independent variable in the foregoing estimating equation, was made readily available by the Federal Reserve Board monthly. The second series—adjusted net bank reserves—was constructed from basic information provided by the Federal Reserve Board. Basic spot commodity prices, used as the third independent factor, are published currently by the U. S. Department of Labor daily since 1939. This series was chained to Barron's weekly sensitive spot commodity prices for the period 1921 to 1939 and in turn to Bradstreet's monthly wholesale commodity price index from 1919 to 1921.

Turning points in each of these indices from 1919 to date are compared individually with business cycle standard reference dates furnished by the National Bureau of Economic Research for 1919 to 1954.¹ Then these independent variables are combined through multiple correlation with gross national product, as the dependent variable with a one year lag behind the three leading independent variables. The forecasts resulting from this multiple correlation estimating equation are compared with the standard reference dates for accuracy in timing turning points in the business cycle, and then with gross national product for accuracy in forecasting magnitude a year in advance of actual general business activity.

RESIDENTIAL CONSTRUCTION CONTRACTS

Residential construction contracts awarded tend to lead the trend in general business activity for more than one reason. Contracts for home building precede orders in producing materials to be used in construction. These building materials must be manufactured after the construction contracts have been awarded. The payrolls and other income

1. Arthur F. Burns and Wesley C. Mitchell, *Measuring Business Cycles*, National Bureau of Economic Research, 1946. Also Geoffrey H. Moore, *Statistical Indicators of Cyclical Revivals and Recessions*, National Bureau of Economic Research, 1950.

resulting from this factory production have a multiplier effect on the demand for all types of goods and services, in addition to the actual construction activity itself.

Residential construction is subject to and thus reflects in common the numerous economic factors influencing the demand for consumer durable goods as well as other construction. Municipal and commercial construction, moreover, follow home building. Schools, sewers and stores are added after the awards of residential construction contracts. This cumulative process eventually gives rise to demand for additional production capacity. As industrial construction is completed, machinery and equipment are installed. At the same time inventory is being accumulated to facilitate the requirements of a higher level of general business activity.

It will be noted that the peaks and troughs in residential construction contracts preceded the business cycle turning points in thirteen out of sixteen cases, were simultaneous in one case and lagged in only two cases. In addition, there were two complete sets of turning points in residential contracts unrelated to any listed business cycle reference dates. Residential contracts typically preceded business cycles, with an average lead of three-quarters of a year.

ADJUSTED NET BANK RESERVES

Under the fractional reserve banking system in the United States, changes in effective bank reserves influence the quantity of bank deposits as a medium of exchange, the availability of credit, as well as basic interest rates effecting the capitalization of prospective profits.²

To maximize profits commercial banks tend to expand operations to the practical limits of their legal reserves. Variations in reserves alter permissible deposits and therefore bank loans and investments. Changes in deposits dominate variations in the money supply, since demand deposits are the bulk of the total quantity of money.

Whereas an excessive expansion of money serves to stimulate the economy, a deficiency relative to business activity curtails total demand. A contraction in the money supply shrinks liquidity, leading to cautious use and reduced circulating velocity.

Excess reserves facilitate additional bank loans and investment, resulting in expanded general business activity. When total reserves prove to be inadequate for further expansion, members may borrow from the Federal Reserve Banks at the discount rate. These borrowed reserves, however, are inherently temporary. When repayment reduces total reserves, lending and investing contracts in a deflationary course.

The Federal Reserve Board may alter the effectiveness of reserves by changing member bank reserve requirements.

2. Clark Warburton, *Bank Reserves and Business Fluctuations*, *Journal of the American Statistical Association*, December 1948.

TABLE 1
Turning Points in Residential Construction Contracts
and Business Cycle Reference Dates
Quarterly, 1919-1956

TURNING POINTS	RESIDENTIAL CONSTRUCTION CONTRACTS		BUSINESS CYCLE REFERENCE DATES	
Peak	3rd	1919	1st	1920
Trough	4th	1920	3rd	1921
Peak	1st	1924	2nd	1923
Trough	3rd	1924	3rd	1924
Peak	3rd	1925	3rd	1926
Trough	3rd	1927	4th	1927
Peak	1st	1928	2nd	1929
Trough	1st	1933	1st	1933
Peak	3rd	1936	2nd	1937
Trough	1st	1938	2nd	1938
Peak	3rd	1941	1st	1945
Trough	4th	1944	4th	1945
Peak	2nd	1946	...	...
Trough	2nd	1947	...	...
Peak	3rd	1948	4th	1948
Trough	1st	1949	4th	1949
Peak	3rd	1950	...	...
Trough	4th	1951	...	...
Peak	3rd	1952	2nd	1953
Trough	2nd	1953	3rd	1954
Peak	1st	1956		

Sources: Residential construction contracts from the Federal Reserve Board and business cycle reference dates from the National Bureau of Economic Research.

TABLE 2
Turning Points in Adjusted Net Bank Reserves
and Business Cycle Reference Dates
Quarterly, 1919-1956

TURNING POINTS	ADJUSTED NET BANK RESERVES		BUSINESS CYCLE REFERENCE DATES	
Peak	3rd	1919	1st	1920
Trough	4th	1920	3rd	1921
Peak	3rd	1922	2nd	1923
Trough	3rd	1923	3rd	1924
Peak	4th	1924	3rd	1926
Trough	4th	1926	4th	1927
Peak	1st	1928	2nd	1929
Trough	3rd	1929	...	...
Peak	2nd	1931	...	...
Trough	1st	1932	1st	1933
Peak	1st	1936	2nd	1937
Trough	3rd	1937	2nd	1938
Peak	1st	1941	1st	1945
Trough	2nd	1942	4th	1945
Peak	4th	1947	4th	1948
Trough	1st	1949	4th	1949
Peak	3rd	1952	2nd	1953
Trough	3rd	1953	3rd	1954
Peak	4th	1954		

Sources: Adjusted net bank reserves derived from Federal Reserve Board data: Total reserves less borrowings from Federal Reserve Banks, adjusted for changes in percentage reserve requirements. Business cycle reference dates from the National Bureau of Economic Research.

TABLE 3
Turning Points in Basic Commodity Prices and
Business Cycle Reference Dates
Quarterly, 1919-1956

TURNING POINTS	BASIC COMMODITY PRICES		BUSINESS CYCLE REFERENCE DATES	
Peak	1st	1920	1st	1920
Trough	2nd	1921	3rd	1921
Peak	1st	1923	2nd	1923
Trough	2nd	1924	3rd	1924
Peak	4th	1925	3rd	1926
Trough	1st	1927	4th	1927
Peak	4th	1927	2nd	1929
Trough	1st	1933	1st	1933
Peak	1st	1937	2nd	1937
Trough	2nd	1938	2nd	1938
Peak	4th	1939	1st	1945
Trough	3rd	1940	4th	1945
Peak	4th	1947	4th	1948
Trough	2nd	1949	4th	1949
Peak	1st	1951	2nd	1953
Trough	4th	1953	3rd	1954
Peak	4th	1956		

Sources: Basic commodity prices from Bradstreet for 1919-20, Barron's for 1921-39 and the Department of Labor for 1939 to date. Business cycle reference dates from the National Bureau of Economic Research.

These variations in the ratios of deposits as required reserves adjust the potential money and credit supply.

For these reasons, adjusted net bank reserves were constructed as an original statistical series to serve as a measure of expansive or contractive forces originating in the banking system.

It will be noted that all sixteen peaks and troughs in business cycles were preceded by the turning points in adjusted net bank reserves. This would indicate a perfect record, with the exception of one complete set of bank reserve turning points unrelated to any listed business cycle reference dates. Adjusted net bank reserves typically preceded business cycle reference dates, with an average lead of one full year.

BASIC COMMODITY PRICES

Prospects for higher selling prices and consequently wider profit margins, resulting from an expansion of money and credit in excess of supply, stimulate an expansion in production. On the other hand, a deficiency in demand produces lower prices. This decline squeezes profit margins, in view of rigid costs. The narrower profit margins induce a reduction in output and diminished inventory accumulation.

As manufacturers receive new orders, they generally purchase raw materials. As a result, basic commodity prices are a sensitive index reflecting industrial demand (in view of the usually slow changes in supply).

In this manner, primary raw material prices are a sensitive measure reflecting changes in basic demand for commodities.

It will be noted that the turning points in basic commodity prices preceded the peaks and troughs in business cycles

in thirteen out of sixteen cases and were simultaneous in three cases. Basic commodity prices typically preceded business cycle reference dates, with an average lead of one quarter of a year or longer.

COMBINATION

The next step in this study was to combine the three leading indicators, comprising residential construction contract awards, adjusted net bank reserves and basic commodity prices. These factors were correlated with the gross national product (the total value of all goods and services produced in the U. S. as estimated by the Department of Commerce), using the method of multiple correlation to obtain the proper weights for each of the independent variables.⁸ The estimating equation was based on data for all the years since the first World War to date (except those of the second World War when construction and prices were subject to strict Government controls).

The resulting estimating equation was computed algebraically by simultaneous solution, with gross national product figures lagging by a full year behind the three leading indicators. In this way the available current data estimate gross national product of the following year, yielding forecasts a year in advance of the actual.

Estimating equation:

$$GNP = 12 B + .77 R + P - 20$$

where GNP = gross national product (billions of dollars)

B = adjusted net banks reserves (billions of dollars)

R = residential construction contract awards (index)

P = basic commodity prices (index)

3. Frederick C. Mills, Statistical Methods Applied to Economics and Business, revised edition, 1938, chapter 16.

GROSS NATIONAL PRODUCT

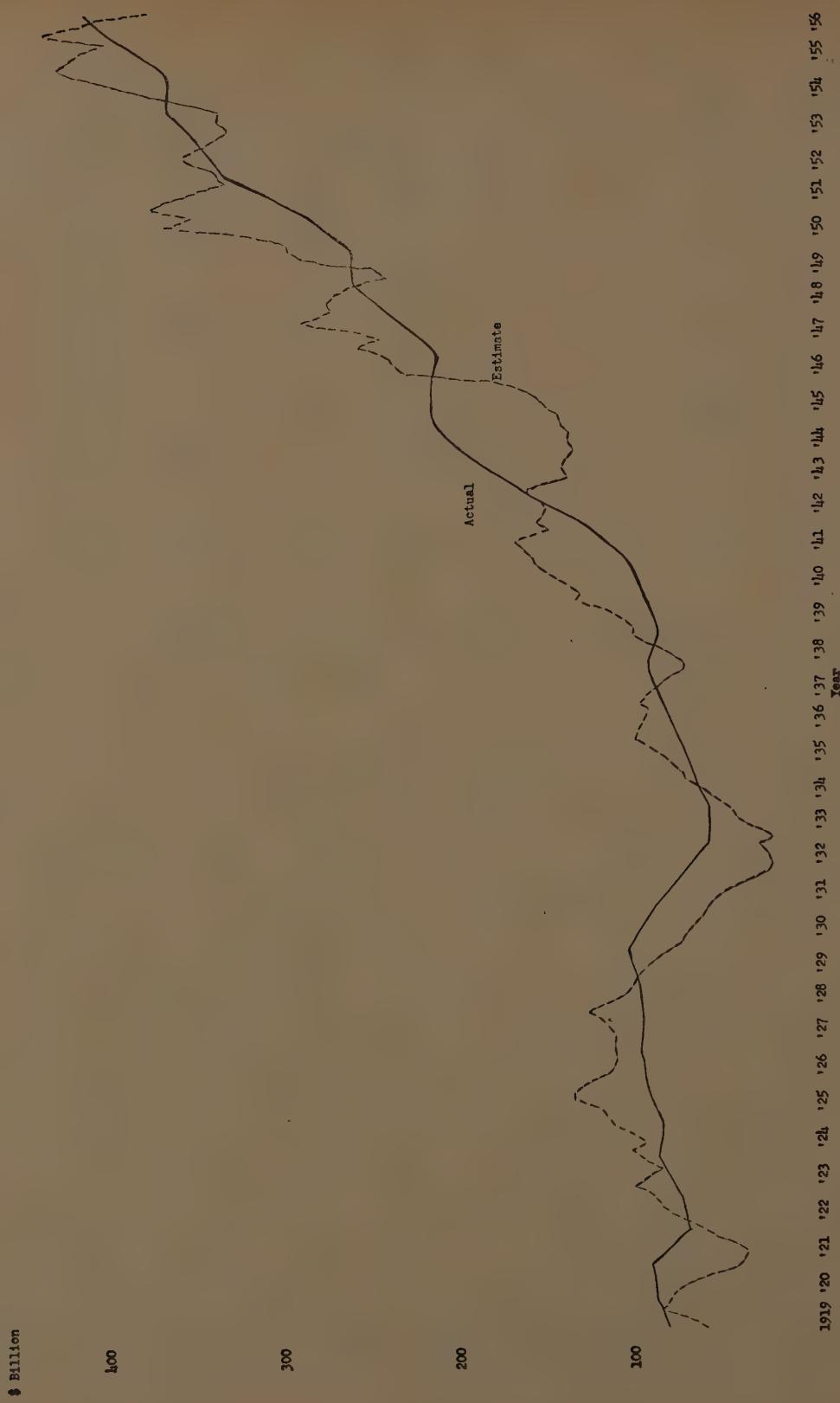


TABLE 4
Turning Points in Forecast Estimates and
Business Cycle Reference Dates
Quarterly, 1919-1956

TURNING POINTS	FORECAST ESTIMATES		BUSINESS CYCLE REFERENCE DATES	
Peak	3rd	1919	1st	1920
Trough	1st	1921	3rd	1921
Peak	1st	1923	2nd	1923
Trough	3rd	1923	3rd	1924
Peak	3rd	1925	3rd	1926
Trough	4th	1926	4th	1927
Peak	1st	1928	2nd	1929
Trough	2nd	1932	1st	1933
Peak	4th	1935	2nd	1937
Trough	1st	1938	2nd	1938
Peak	3rd	1941	1st	1945
Trough	3rd	1944	4th	1945
Peak	4th	1947	4th	1948
Trough	1st	1949	4th	1949
Peak	1st	1951	...	...
Trough	4th	1951	...	...
Peak	3rd	1952	2nd	1953
Trough	2nd	1953	3rd	1954
Peak	1st	1956		

Sources: Forecasts from above equation. See tables 1, 2 and 3 as well as text. Business cycle reference dates from the National Bureau of Economic Research.

It will be noted that all sixteen business cycle turning points were preceded by their respective peaks and troughs in the forecast estimates based on the equation derived by multiple correlation. If not for the sole exception of a set of estimates unrelated to any listed business cycle reference dates presumably due to distortions of the Korean War, this would indicate a perfect record of forecasting.

On the average, the forecast estimates typically preceded the business cycle reference dates by a lead of one full year. It was also noted that leads from peaks preceding the downswings were somewhat longer than the leads from

troughs preceding the upswings in business cycles.

The relationship of the forecasts to the subsequent fluctuations in general business activity is not limited to the sequence of turning points. The magnitude of expansion and contraction in the forecast estimates are closely associated with those of recovery and recession in gross national product (the most comprehensive indicator of general business activity). The duration of the cycles are well correlated, too.

Apparently here is a basis for forecasting general business activity a full year in advance.

AIR REDUCTION

Company Incorporated

AIRCO 161st CONSECUTIVE
COMMON STOCK DIVIDEND

The Board of Directors has declared a regular quarterly dividend of 62 1/2¢ per share on the Common Stock of the Company, payable on September 5, 1957 to holders of record on August 16, 1957, and the twenty-third regular quarterly dividend of \$1.125 per share on the 4.50% Cumulative Preferred Stock, 1951 Series, of the Company, payable on September 5, 1957 to holders of record on August 16, 1957.

July 24, 1957

T. S. O'BRIEN, Secretary

Harbison-Walker Refractories Company

Board of Directors has declared for quarter ending September 30, 1957, DIVIDEND of ONE and ONE-HALF (1 1/2%) PER CENT or \$1.50 per share on PREFERRED STOCK, payable October 19, 1957, to shareholders of record October 4, 1957.

Also declared a DIVIDEND of \$.45 per share on COMMON STOCK, payable September 3, 1957, to shareholders of record August 9, 1957.

G. F. Cronmiller, Jr.
Vice President and Secretary

Pittsburgh, July 19, 1957.



THE DAYTON POWER AND LIGHT COMPANY

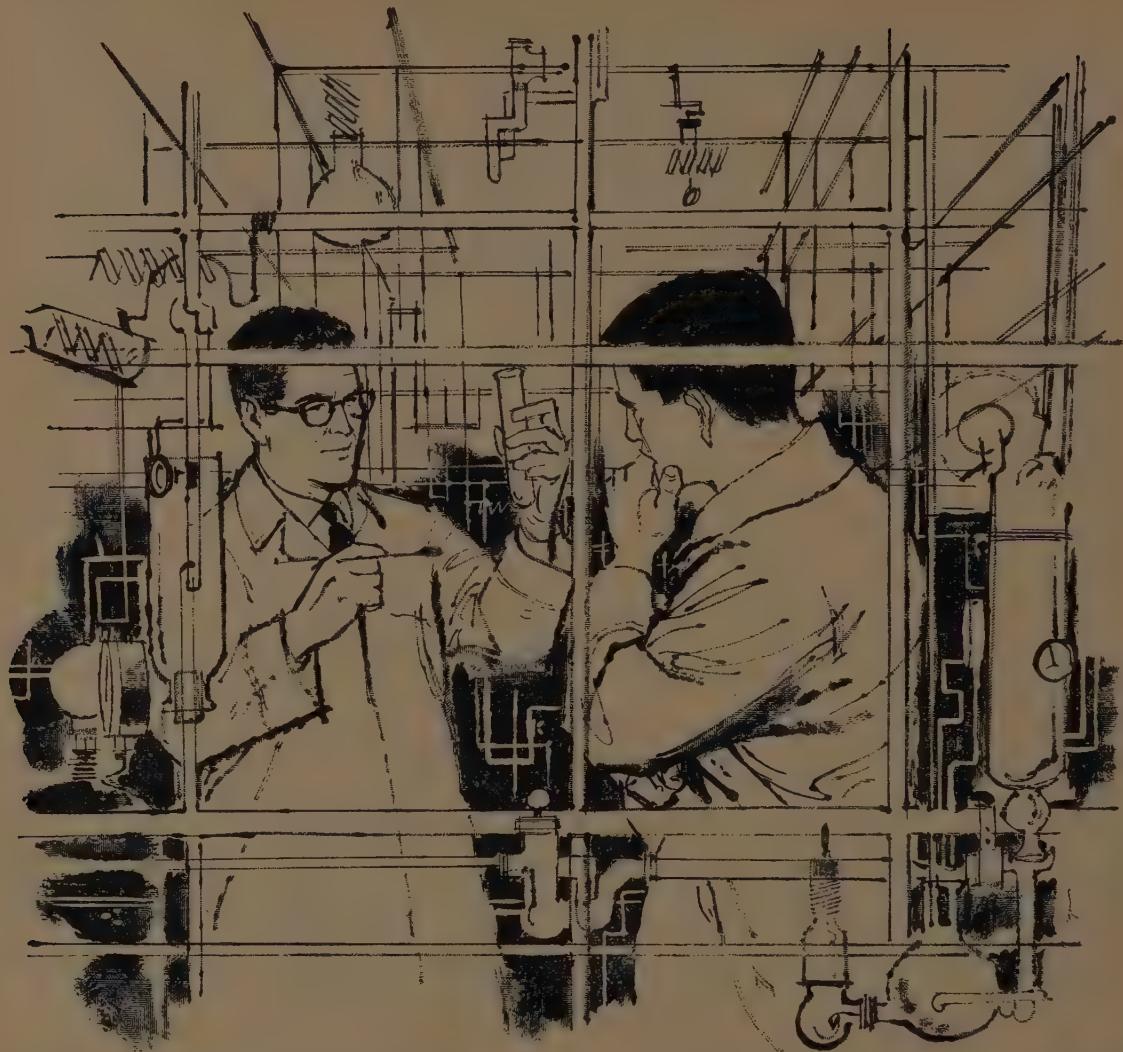
DAYTON, OHIO

140th Common Dividend

The Board of Directors has declared a regular quarterly dividend of 60c per share on the Common Stock of the Company, payable on September 3, 1957 to stockholders of record at the close of business on August 15, 1957.

GEORGE SELLERS, Secretary
August 2, 1957

Why all the activity in New England Electric?



INVESTING IN AN ATOM-POWERED FUTURE

Favored with the best in research facilities, New England scientists and engineers are setting a vigorous pace in adapting the fission principle to industrial power needs. New England Electric is adding spark to this dynamic progress by joining with other utilities to build the region's first nuclear electric power plant in western Massachusetts. And there are plans, too, for an even larger atomic-fired plant to be built by New England Electric.



All this means good living and profit to New Englanders — and profit, too, for the farsighted folks in other sections of the country who have investments in New England business and industry.

NEW ENGLAND ELECTRIC SYSTEM

Tight Money: Deflationary or Inflationary?

HAROLD EHRLICH

THE LONG-STANDING CONTROVERSY over whether the general price level can be controlled through the use of purely monetary measures seems to have become one of the burning issues of the day, one involving not only academic economists, but businessmen, Congressmen, financial experts, and, of course, the money managers themselves. An avalanche of articles, both praising and condemning monetary policy, has appeared, and it looks like only the beginning.

Despite the current torrent of words, many real questions concerning monetary policy remain unanswered because there has been a failure to specify what is to be expected from particular measures. No one doubts that a "tight money" policy has various effects, but are these the effects intended, expected, and desired?

Among the aims of restrictive monetary moves might be the following:

Objectives	Effectiveness
(1) Depressing the securities market	Effective
(2) Raising the burden of the national debt	Effective
(3) Stimulating personal saving	Ineffective
(4) Restricting bank lending	Ineffective
(5) Limiting real investment	Ineffective
(6) Stabilizing the general price level	Ineffective

If one aim of restrictive monetary policy is to depress stock prices, then it will have some effect. By mid-winter of 1956-57, stock prices had declined considerably compared to the previous summer's highs. However, factors other than interest rates probably had a greater effect during this period. The Suez crisis, uncertainties attending the November elections, and, above all, pessimistic business predictions for the second half of 1957 all took their toll.

In a recent examination of stock market behavior, Professor W. L. Smith found that prices remain depressed after a rise in the rediscount rate only if further increases are anticipated.¹ Such depressions of stock prices are thus not due to high interest rates but to "the effect of rapidly rising interest rates on the issuance of new securities,"² one result being that new issues postponed during the period of rising rates are marketed once stability reappears.

Another and related goal of raising rediscount rates might be to depress the bond market, making it more costly and difficult for firms to engage in long-range financing. Dealers and investors become chary of taking up new issues. Like objections voiced in connection with the stock market may be raised to this, i.e., once interest rates appear to have stopped rising, buyers proceed with purchases previously postponed.

MORTGAGE MONEY

There is one effect of higher corporate security yields which does slow the upward spiral of prices, namely, the consequent restriction of mortgage money. As the spread

between bond and mortgage yields was progressively reduced, a shift occurred in the investment preference of many banks and life insurance companies—a shift away from mortgages.³ Home mortgage loans increased only about \$11 billion during 1956 compared to the record \$12.5 billion increase during the previous year,⁴ so that expenditures for residential construction were "relatively stable during 1956, at a level about one-tenth below the record set in 1955, but much higher than in any previous postwar year."⁵ Building materials prices were depressed, but how much effect there was on prices in general is questionable. Such a diversion of funds from home mortgages to corporate securities could result in a parallel diversion of construction activity from new homes to new plants.

Many organizations are continuing with new security issues despite mounting money rates because they think rates might go higher, and other costs are rising so rapidly that any financing advantages gained by postponing flotations might be more than offset.⁶ Perhaps the most striking aspect of this is that "the bulk of new security flotations continues to be debt rather than equity issues."⁷ Regardless of higher interest costs, many managements believe it is still cheaper to borrow than to issue new stock. Some competent authorities think the trend of new issues will continue upward.⁸

As one investment banking firm put it, "Interest costs may be steep for the average corporation, but with taxes at 52 per cent, the effective interest rate is less than half the coupon, and this in an era of mounting wage costs may be a lot cheaper than the postponement of plant expansion and improvement."⁹

In any event, today most large firms do the great bulk of their financing "internally." Thus, in recent years only between 25 and 30 per cent of all business expenditures on new plant and equipment has come from the sale of new security issues.¹⁰ Higher interest costs have little influence on decisions to invest out of surplus, and most real investment is of this nature.

MARKETING NEW ISSUES

If the aim of a tight money policy is to increase the burden of the national debt, then certainly it will be effective. With the total gross federal debt now in the neighborhood of \$277 billion, even a small increase in interest rates assumes monumental importance. Interest payments on that debt now amount to almost \$7 billion per year, and the market for Government securities has been weakened seriously. The Treasury is finding it increasingly difficult to market new issues at what might be considered reasonable levels. The Treasury has recently raised yields on Series "E" and "H" bonds because redemptions were outstripping sales. On July 18 it was announced that some refunding operations would be carried out at the 4 per cent level.

If one goal of restrictive monetary policy is to stimulate

¹ Footnotes appear at end of article.

personal saving, then that policy is likely to fail. Most economists now accept the loanable-funds and/or liquidity preference theories, some having shown their essential comparability.¹¹ A part of savings are still considered interest responsive, but the bulk is thought to be a function of income.

Aside from theory, the facts are convincing. Personal saving has ranged between 6 and 8 per cent of disposable personal income from 1950 to the present.¹² Although the proportion rose to slightly over 7 per cent in 1956, it was higher in 1952-53 when interest rates were much lower. The Reserve relates this "increase in personal savings [in 1956] . . . to the decline in consumer purchases of automobiles . . .,"¹³ not to higher interest rates.

Another aim of restrictive monetary measures might be to limit bank and other institutional lending. The principal argument has been that a tight money policy would "freeze" institutional lenders into currently held securities by making it very costly for them to sell or to use these securities for their own borrowing (from the Fed or in the open market). Potential borrowers would thus find it prohibitively expensive to obtain funds from these lenders.

Professor Smith has dealt with these arguments by mathematically demonstrating that "in many cases a small rise in the differential between the interest rates on private securities and on government securities should be sufficient to compensate the holder for the capital loss incurred in the sale of government securities."¹⁴ He reminds us that "Commercial banks want to meet the credit demands of their customers and are under pressure to do so."¹⁵ Consequently, although "banks do not like to be in debt. . . , it would seem likely that the presence of the Federal Reserve as a dependable source of funds in case of need has probably had some influence on the attitude of banks toward their liquidity position."¹⁶ With regard to currently fashionable discussions of "credit rationing," Professor Smith points out that when rediscount rates are increased, banks [can] meet the loan demands of some of the customers whom they turned down in the initial stages of credit rationing."¹⁷

EFFECTS OF DEMAND FOR CREDIT

The facts seem to confirm his conclusions. The Reserve itself has admitted that "To meet the sharp rise in demands for long-term credit in 1955, many institutions supplemented their inflows of loan repayments and new savings by borrowing or reducing their holdings of cash and Government securities."¹⁸ Moreover, "Sales of Government securities by life insurance companies were large in the early months of 1956, as these companies sought funds to meet rising loan demands and to fulfill commitments made earlier."¹⁹ Economists of the Bankers Trust Company have pointed out that during 1956 "life insurance companies and mutual savings banks were compelled to step up their liquidations of United States Government securities."²⁰

During 1956, commercial banks increased their total loans by \$7.8 billion and reduced investments some \$3.5 billion, leaving a net rise in loans and investments of \$4.3 billion compared with a rise of \$4.6 billion during 1955.²¹ "However, sales finance and mortgage companies, which

accounted for more than one-fourth of the increase in business loans in 1955, repaid bank debt in 1956. Excluding loans to these borrowers . . . other business loans rose about \$5.7 billion in 1956, compared with about \$4.5 billion in 1955."²²

This 9.5 per cent increase in commercial bank loans was the second largest annual increase during the past five years, and the 16.5 per cent increase in business loans came near being an all-time record, despite "continuous monetary restraint."²³

From the end of December 1954 to the end of December 1956, all banks increased their outstanding loans by some \$25.4 billion, or 29.6 per cent; all commercial banks increased their loans by \$20.6 billion, about 29.2 per cent, and Member bank loans rose by about \$8.6 billion, or almost 31 per cent.²⁴ These are record or near record figures for a like period. During this time, the Federal Reserve raised its rediscount rate on six separate occasions.

LENDING AND INTEREST RATES

Just why should banks curtail lending when interest rates are high? If, as it would appear, the demand for funds is somewhat inelastic, then higher prices would mean greater total revenues. And, in fact, "Net profits after taxes of all member banks in the first half of this year [1956] amounted to \$544 million, \$60 million higher than in the comparable period of last year."²⁵ Moreover, "Earnings on loans accounted largely for the increase." In the face of higher costs, "the ratio of net profits to capital accounts increased from 7.9 per cent to 8.3 per cent."²⁶ For the year as a whole, net current earnings before income taxes amounted to a record \$2,398 million—some \$321 million more than in the previous record year of 1955, although net profits after taxes rose only \$41 million "because of a decline in profits on sales of securities, a substantial increase in net losses and charge-offs, and larger provisions for valuation reserves."²⁷

So long as banks can make more money by lending more they will do so, for that is their business. Why assume that bankers are so different from other entrepreneurs?

Brushing aside all these arguments, is monetary policy capable of controlling the level of real investment and business activity? The facts make a negative answer inescapable. In September of 1956, the Department of Commerce reported that "businessmen expect to spend at the seasonally adjusted annual rate of \$36 billion in the third quarter [of 1956] and \$38 billion in the fourth . . . If realized, these programs will mark the seventh successive quarter of substantial increase in business capital outlays, the projected rate being 50 per cent higher than the seasonally adjusted expenditure in the first quarter of 1955, when capital spending was at its recent low."²⁸ Recall once again that the rediscount rate was raised on six occasions during this period.

Furthermore, these capital spending rates (which were largely realized)²⁹ were little different from those anticipated in the March, 1956 Survey.³⁰ In other words, even though the rediscount rate was raised twice between the time the original predictions were made and this latest poll taken, overall business expectations were little changed.

**Business Expenditures on New Plant and Equipment
Seasonally Adjusted at Annual Rates**

Item	4th Quarter 1956	4th Quarter 1956 Anticipated (31)	1st Quarter 1957 Anticipated (32)	1st Quarter 1957 Actual (33)
	(Billions of dollars)			Actual (34)
Manufacturing	16.87	15.81	16.47	16.12
Durable	8.64	8.21	8.18	8.09
Non-durable	8.23	7.60	8.28	8.03
Mining	1.28	1.28	1.22	1.35
Railroad	1.53	1.23	1.54	1.42
Transportation, other than Rail	1.99	1.76	1.86	1.52
Public Utilities	5.31	5.27	5.40	5.72
Commercial & other	11.02	11.11	11.48	10.76
Total	38.00	36.46	37.96	36.89

Differences that did occur were mainly due to factors other than interest rates. "These downward adjustments may be considered in large part an aftermath of last summer's steel strike. In this respect, the current revisions—though considerably smaller—resemble those that followed the somewhat longer 1952 work stoppage in steel."³⁵ The largest deviations came in "railroads, gas utilities, and petroleum, industries in which capital outlays are especially sensitive to the shortages in heavy plate and pipe."³⁶ Nevertheless, "the increase in aggregate investment over 1955 that business projected according to the Survey last year came extremely close to realization."³⁷

At the end of last year the Reserve concluded that "Business expenditures have not moderated significantly since midyear [1956]. Plant and equipment expenditures have continued to rise . . ."³⁸ Still later Reserve surveys have confirmed this "continuing expansion in capital goods activity."³⁹ The Department of Commerce reports that the "latest OBE-SEC survey of plant and equipment expenditures through the second and third quarters of this year [1957] finds that businessmen are expecting further increases in their capital outlays."⁴⁰

EXPANSIONARY WAVE IN UTILITIES

Even more significant is the fact that, although the investment boom in manufacturing seems to be levelling off somewhat, a "new expansionary wave in public utilities is gathering momentum, and this advance is being augmented by rising expenditure schedules of railroads."⁴¹ Public utilities and railroads are supposedly far more sensitive to higher interest costs than manufacturing concerns, yet the facts do not support this common contention. In any event, "While the seasonally adjusted quarterly data are suggestive of a slackened rate of increase in aggregate investment, it is noteworthy that the outlays scheduled for the July-September [1957] period would represent the tenth successive quarter of rise in capital outlays, one of the largest advances on record."⁴²

Part of the necessary funds for this expansion has come from business reductions of liquid asset balances, increases in short-term borrowing, and from reduction of Government holdings by non-financial corporations.⁴³ But, as shown above, a great deal of this record capital expansion was financed through new corporate security issues (mainly bonds), despite sharply mounting interest costs.

On all sides business is booming at record or near record levels. *Fortune* recently reported that 86% of the executives questioned in its semi-annual survey found things either "very good" or at least "good."⁴⁴ (*Fortune* found bankers the "happiest of all; 98 per cent said business was either 'good' or 'very good'.") A later *Fortune* survey predicted that "1957 will be the best business year ever."⁴⁵ But even more important is the fact that this forecast was "largely unchanged since last July . . ."⁴⁶ *Fortune's* latest prediction calls for business activity to rise to new peaks late this year and in 1958, and specifically for further increases in capital outlays, consumer spending, and prices.⁴⁷ Does the author need to add "tight money notwithstanding?"

Practically all economic indicators tended upward during the first part of 1957, including prices for producers and consumers. Both the consumer and wholesale price indices have risen almost continuously for about a year and a half now. In the face of this mass of evidence, can it be said that tight money has had an effect? The answer is "yes, but not the effect intended."

As the *Wall Street Journal* so aptly headlined it, "Some Small Firms Cut Expansion; Most Big Companies Push Ahead."⁴⁸ In answer to the question, "Is tight money slamming the brakes on business?" the *Journal* (from an extensive survey) reported that "Tight money is delaying some business expansion programs—chiefly for medium-sized and small concerns."⁴⁹ Almost universally, representatives of the large concerns contacted by the *Journal* denied that tight money was having any effect on them. Only the smaller concerns reported difficulties over tight money, and the *Journal* commented that "Not all medium-sized and smaller concerns are bothered by tight money by any means."

DOES TIGHT MONEY PINCH?

The American Bankers Association, in a survey of smaller banks, found that "tight money hardly pinches at all."⁵⁰ More than two-thirds of banks with deposits of less than \$50 million reported that "tight money had had negligible effect on the volume of their lending." Some 71 per cent of the respondents reported that few "small business concerns were suffering from inability to obtain as much credit as they deserved."⁵¹

On the other hand, Harvard's Professor J. K. Galbraith has recently argued that "It would be hard to find a policy [tight money] better designed to encourage the large and the strong at the expense of the small and the weak. When banks must limit credit, they are impelled to protect their oldest, strongest, and most reliable customers. These, in general, will be the larger firms."⁵² Secretary of the Treasury, Humphrey, has put himself on record as believing "that 'tight' money was harder on some persons than on others . . ."⁵³

All in all, the tight money policy has served only to damp down some small business activity and bring the "bond market rather close to a state of demoralization,"⁵⁴ but has impinged on big business like a flea biting an elephant. And, of course, big business does far and away most of the capital spending (and produces most of the goods)

in our economy. If the intent of our money managers has been to restrain our mammoth industrial system, they have been as ineffectual as that flea.⁵⁵ But this criticism does not tell us why the Reserve's efforts have gone so unrewarded. After all, we should be interested in curbing inflation, not the Reserve.

We cannot blame the Reserve for something which was not its fault—for failing to control the current inflation. Surely our money managers had the highest intentions and pursued their appointed task with zeal. Failure was inevitable under current conditions.

The reason for this is simply that although the Reserve has some control over the stock of money in existence, it has little or no influence over the velocity of circulation. As we have seen, borrowers who could not obtain sufficient funds from commercial banks can turn to other lenders, or reduce their holdings of cash and securities, or rely increasingly upon the use of open-book accounts. In the last two years, a combination of all three⁵⁶ has enabled businessmen and consumers to fulfill their requirements regardless of the Reserve's actions. In other words, restrictions on the quantity of money have not led to curtailment of business and consumer spending and price declines, but to a more rapid turnover in money velocity.⁵⁷

Higher interest rates and other monetary restrictions are, if anything, really inflationary! Financing costs are part of production costs, and when the cost of producing an article is higher, its price will rise in due course. For example, the Reserve has pointed out that part of the reason for the rising prices of metals and metal products is that "financing costs for plant and equipment have risen."⁵⁸

Many economists have recently concluded that today's inflation is of the "cost-push" variety, unrelated to the classical "credit expansion" inflation.⁵⁹ If this is so, then tight money will be of little avail even by classical precepts, because the wrong things are being tightened.

In this connection, Professor Galbraith has commented that monetary policy "makes no contact with the wage-price spiral. No one supposes that the steel industry was much deterred last summer in reaching a wage settlement and raising its prices because money was tight."⁶⁰ Consequently, if inflation is to be controlled, measures must be used which do come in contact with the wage-price spiral.

It will be necessary to do much more than strengthen current monetary mechanisms, i.e., reserve requirements, rediscount rates, and open-market operations. The devices through which these mechanisms are circumvented must be controlled. The monetary authorities would have to be invested with power to control non-commercial bank lending, security dealings, open-book credit terms, and business holdings of cash and securities. Such controls would no longer be general credit controls, but direct controls, even as so-called "selective" controls on consumer and real estate credit are really direct controls.

INFLATION CONTROLS

How can inflation be controlled? The President has proposed the possible imposition of wage-price controls. These might work for a time, but there is doubt as to their lasting effectiveness in peacetime. A new regulation "W" on con-

sumer credit, higher margin requirements, and further real estate credit controls, would damp down spending, but here the question is how to decide the most equitable incidence of such restrictions.

Professor Galbraith's novel suggestion merits careful thought with a view toward its basic soundness and possible methods of implementation. He has proposed that employers be stopped from raising prices for a period of, say, six months after granting any general wage increases. This would promote more hard bargaining and less tacit acquiescence by management in wage negotiations, and might help break the wage-price spiral.

Fiscal policy, i.e., taxation and Government expenditure manipulations, would be the surest although least popular way. Decreased Federal Government spending, aside from being most welcome in many quarters, would certainly do the trick, although it might not be practical because of political, military and welfare realities. Another drawback to fiscal policy is its inflexibility, its lack of immediate adjustment. Acts of Congress are required, and these take time. Such difficulties should not discourage consideration of what might be workable, aside from many limitations. After all, monetary policy has the advantages of flexibility, practicality, and popularity (except among small businessmen), and has only one limitation. It just does not work.

FOOTNOTES

1. W. L. Smith, "On the Effectiveness of Monetary Policy," *American Economic Review*, Vol. xlvi, No. 4 (Sept., 1956), p. 599.
2. Smith, *loc. cit.*
3. *Moody's Bond Survey*, Vol. 48, No. 44 (Oct. 29, 1956), p. 249, and *Fed. Res. Bull.*, Dec. 1956, p. 1279.
4. *Fed. Res. Bull.*, *op. cit.*, p. 1349, and *Fed. Res. Bull.*, May 1956, p. 559.
5. *Fed. Res. Bull.*, Dec., 1956, p. 1282.
6. Bankers Trust Company, *The Investment Outlook for 1957*, New York, 1957, p. 8.
7. *Fed. Res. Bull.*, Dec., 1956, p. 1281.
8. Bankers Trust Company, *op. cit.*, p. 10.
9. Carl M. Loeb, Rhodes & Co., *Fortnightly Review*, New York, June 25, 1957, p. 2.
10. *Fed. Res. Bull.*, Dec., 1956, pp. 1346, 1348.
11. S. C. Tsaing, "Liquidity Preference and Loanable Funds Theories," *American Economic Review*, Vol. xlvi, No. 4 (Sept., 1956), pp. 539-64.
12. *Fed. Res. Bull.*, Jan., 1956, p. 86.
13. *Ibid.*, p. 2.
14. Smith, *op. cit.*, p. 591.
15. *Ibid.*, p. 594.
16. *Ibid.*, p. 595.
17. *Ibid.*, p. 596.
18. *Fed. Res. Bull.*, Dec., 1956, p. 1277.
19. *Ibid.*, p. 1279.
20. Bankers Trust Company, *op. cit.*, p. 7.
21. *Fed. Res. Bull.*, Feb., 1957, p. 118.
22. *Loc. cit.*
23. Fed. Res. Bank of New York, *Annual Report*—1956, p. 9.
24. *Fed. Res. Bull.*, Feb., 1956, p. 167.
25. *Fed. Res. Bull.*, Nov., 1956, p. 1179.
26. *Loc. cit.*
27. *Fed. Res. Bull.*, May, 1957, p. 517.
28. *Survey of Current Business*, Vol. 36, No. 9 (Sept., 1956), p. 3.
29. Cf. *Infra.*, p. 10.
30. *Survey of Current Business*, *op. cit.*, p. 3.
31. *Survey of Current Business*, Sept., 1956, p. 4.

32. *Survey of Current Business*, Vol. 37, No. 3 (March, 1957), p. 10.

33. *Survey of Current Business*, Vol. 36, No. 12 (December, 1956), p. 3.

34. *Survey of Current Business*, Vol. 37, No. 6 (June, 1957), p. 3.

35. *Survey of Current Business*, Vol. 36, No. 12 (December, 1956), p. 2.

36. *Loc. cit.*

37. *Fed. Res. Bull.*, March, 1957, p. 9.

38. *Fed. Res. Bull.*, December, 1956, p. 1280.

39. *Fed. Res. Bull.*, May, 1957, p. 506.

40. *Survey of Current Business*, Vol. 37, No. 6 (June, 1957), p. 2.

41. *Loc. cit.*

42. *Loc. cit.*

43. *Fed. Res. Bull.*, December, 1956, p. 1279, 80.

44. *Fortune*, November, 1956, p. 39.

45. *Fortune*, January, 1957, pp. 33, 34.

46. *Loc. cit.*

47. *Fortune*, July, 1957, p. 46.

48. *Wall Street Journal*, January 8, 1957, p. 1.

49. *Loc. cit.*

50. *New York Times*, July 22, 1957, p. 34.

51. *Loc. cit.*

52. J. K. Galbraith, "Are Living Costs Out of Control?" *Atlantic Monthly*, Vol. 199, No. 2 (February, 1957), p. 40.

53. *New York Times*, July 10, 1957, p. 26.

54. Carl M. Loeb, Rhodes & Co., *loc. cit.*

55. The author's entire argument up to this point could be challenged by admitting that a tight money policy in and of itself cannot stop a general price inflation, adding that, if the Reserve had not tightened money, prices would have risen faster and higher. But this evades the issue, for the author could rejoinder by maintaining that if money had not been tightened, the price rise would have been less grievous, that restrictive monetary practices aggravated the situation. Remember that old saw, "If 'ifs' and 'ands' were pots and pans . . . ?"

56. *Fed. Res. Bull.*, December, 1956, p. 1348.

57. *Ibid.*, p. 1326.

58. *Fed. Res. Bull.*, November, 1956, p. 1160.

59. See recent letters to the editor of the *New York Times* by Professors William N. Fellner, Cyril Zebot, and Richard Ruggles, among others. Also, testimony before the Patman and Kefauver Congressional Committees.

60. Galbraith, *op. cit.*, p. 41.

*Specialists
in successful stockholder
relations*

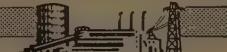
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QUARTERLY DIVIDENDS

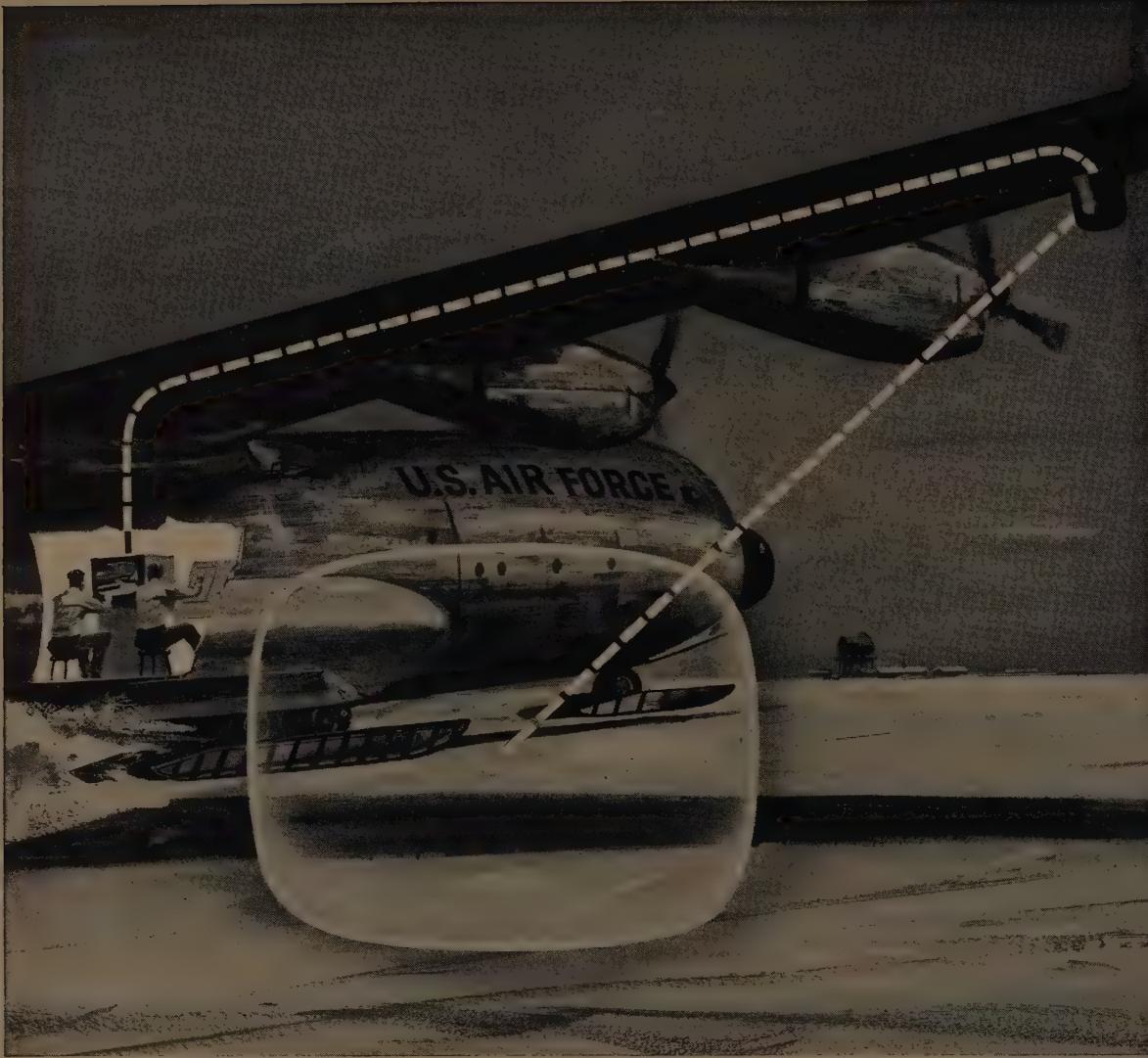
The Board of Directors has declared the following dividends for the quarter ending September 30, 1957:

Class of Stock	Dividend Per Share
4.08% Cumulative Preferred	\$1.02
4.18% Cumulative Preferred	1.045
4.30% Cumulative Preferred	1.075
\$1.40 Dividend Preference	.35
Common	.45

All dividends are payable on or before September 30, 1957 to stockholders of record August 30, 1957.

F. MILTON LUDLOW
Secretary





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The three following articles are part of the forum conducted by the New School. The speakers were for the most part members of the New York Society of Security Analysts. There has been a continued demand for publication of these talks. More will follow.

Canadian Investment Opportunities*

W. STURGIS MACOMBER

CANADA, IN MY OPINION, is one of the most interesting areas for investment, for the following reasons: 1. Stability of Government; 2. Strength and conservatism of Government financial policies; 3. Growth.

The ten years since the end of World War II have witnessed a population increase of 24%, a national volume of output which has risen by more than one third, and a dollar value of manufactures which has more than doubled. The gain in personal consumption expenditures has outstripped that of the United States, as has industrial production, private capital expenditures, total corporate profits after taxes and gross national products. This growth has been the result of Canada's unique position and its unusual characteristics. Its position as a friendly, next door neighbor of the United States gives it a vast market. The United States is by far Canada's largest trading partner. Further,

in the past thirty years the importance of the United States as an export market has increased sharply as the United States has increased its industrial activity and further depleted many of its natural resources. The United States' share of Canada's exports has risen from 40% of the total to about 60% in recent years. Inasmuch as Canada is short on fabricating facilities in many areas, the United States' share of Canada's imports is greater although over the same thirty year period it has grown from about 67% to about 72% of the total. In contrast with the expansion of trade in the United States, Canadian trade with the United Kingdom has diminished in relative importance during that period. Canadian exports have declined to 17% of the total and imports have shrunk to 10% of the total. This enormous trade with the United States has boosted Canada to a position of fourth in international commerce and on a per capita basis it exceeds that of most other leading trading countries.

Since Canada is a relatively unexplored, undeveloped nation today with a population of only 16 million people, and its vast area of 3,800,000 square miles contains many minerals vitally necessary to our modern civilization, it is quite evident that this growth shall continue over the long term. I would believe that the largest single influence in the rate of this growth will be the rate of industrial activity in the United States.

Canada has good seaports on both its coasts which put it in an enviable position to serve world trade. Further, additional strength may be attributed to the country and its relations with the United States because the people are largely English speaking and have a democratic govern-

ment and the country is in a strategically strong position as a buffer between the United States and Russia. All of these factors combine to make Canada an ideal place for long term capital investment. Indicative of this fact is that the value of United States' investments in Canada in 1954 amounted to \$9.6 billion, a new high rate and about double the value at the end of the war. Foreign investors now own about one tenth of the broad field of Canadian industry and commerce. Additional proof, if it were needed, could be supplied by the success of investment trusts formed in recent years for the sole purpose of investing in Canadian common stocks. As stated before, Canada is rapidly developing as a mineral storehouse for 166 million Americans as the great mineral deposits of the United States become depleted. It is, therefore, my opinion that in this area lies the greatest opportunity for investment.

CANADA'S RESERVES

Canada's vast forest reserves, upon which the wood, wood products and paper industries together depend for their raw material, accounted for over 14% of the value of factory shipments of all manufacturing industries for Canada in 1953. Canada's forests lie across the land from Atlantic to Pacific and, as the use of paper and paper products continues to grow, Canada's reserves become an increasingly important source of raw material. In addition, interesting work is being increasingly conducted by the paper companies on new by-products to be developed from the unused portions of the tree. A few key statistics as to the growth of the pulp and paper industry in Canada are as follows: In 1930 the industry produced 3.6 million tons of pulp and by 1954 this had increased to 9.6 million tons. The amount of paper produced grew from 2.9 million tons to 7.6 million tons. Newsprint exports (and this is one of the principal export items Canada has) grew from 3.3 million tons to 5.5 million tons. Canada supplied 52% of the world newsprint requirements in 1953 and in that year the United States took 88% of Canada's exports. Of the 15 leading commodities exported from Canada in 1953-1954, newsprint was first and pulp fourth in export value for both years.

Generally speaking, the leading paper securities in Canada have declined from an over-optimistic evaluation of their long term growth possibilities to more realistic levels at the moment. We would, therefore, consider this group for investment. In this field, Abitibi Power & Paper Co., Ltd., has some interesting 4½% convertible bonds due in 1966, which can now be purchased on a 4.6% yield basis

*Given February 7, 1957

and below their call price. Common stock of this company, selling around \$32, yields 5.3%. Another interesting stock that seems to have reached a good buying level here is Consolidated Paper Corp., Ltd., at around \$36 to yield 5.4% and Powell River Co., Ltd., now down to \$42 to yield 4.2%. All three of these companies are among the strongest in their industry in Canada and appear to be in a reasonable buying range in spite of the paper industry outlook in 1957, which appears to be less attractive than in 1956. We believe that this factor has been discounted in the market price of these equities.

Canada has 174 million acres of occupied agricultural land. Its 623,000 farms are distributed roughly across the southern part of the country and on them live more than 2.8 million of the nation's 16 million people. The growing of agricultural crops is still Canada's leading primary industry and upon the prosperity of the farmers, particularly in the predominantly agricultural areas of the midwest, depends the prosperity of other areas of the economy. However, as in the United States, agriculture is giving way to manufacturing as an employer of people. In 1954, the number of people earning their livelihood on farms dropped to 889,000 from 1,364,000 in 1939. Part of this decline, of course, is due to the increased mechanization of highly specialized farm operations. Canada, like most agricultural countries, has measures designed to give price stability in marketing. Under the Agricultural Prices Support Act of 1944, the federal government may stabilize the price of any agricultural produce (except wheat, which is handled separately) by outright purchase or by underwriting the market through guarantees or deficiency payments. The net income of Canadian farms in the period 1946-1953 averaged \$1.6 billion, but in recent years, due partly to declining prices and poor crop weather, farm income has been in a declining trend. Live stock has produced the greatest farm income, with grains second in importance and dairy products from the extensive Canadian farm areas rating third in 1954.

FARM CASH INCOME

The reason why we mention the agricultural situation is that, while it has been in a declining trend, it looks as though this segment in the economy has made a favorable turn in that farm cash income in 1956 increased approximately 4.2% over 1955 and in the month of November farm product prices were up 6.2% over a year ago. This indicates that a turn is at hand in the business of Massey-Harris-Ferguson, Ltd. This company is virtually the only farm equipment company in Canada with sales approximately \$275 million annually. The stock has been in a declining trend for some time and is now available at around \$6 a share. I think that the most interesting way to invest in this strong long term growing situation with the least amount of speculation is through the convertible preferred, now selling around \$85 a share, to yield 5.3%.

I am going to skip the interesting factor that Canada possesses very low cost hydro-electric energy, which it obtains from its enormous falls and rapids distributed throughout Canada. This provides very low cost power, not only to industry but to the people of Canada.

In my opinion, and this is based on 17 years of study,

opportunities in Canada are greatest in the field of mineral resources. First, from a geological point of view, the country has a vast area geologically capable of being host to minerals of all types. Most of this area, because of its relative distance from populated centers, adequate transportation and short season, has not been explored. Exploration in the past years has been confined, therefore, to the more accessible southern part of Canada. Here, in this relatively limited area, vast deposits have already been found and as the demand for metals and energy throughout the world has increased and United States' supply of these minerals has declined, the exploration effort in Canada has pushed steadily northward. In addition to this, new geological approaches using ultra-modern equipment has opened up new ore bodies of considerable size in the older, more accessible areas. The list of metals and minerals now produced comprises more than 60 items and the tempo of their exploitation is indicated by the fact that the value of mineral output has risen from \$99 million in 1945 to \$1.5 billion in 1954 and \$1.8 billion in 1955. While a considerable portion of this great increase in value is accounted for by price changes, the actual volume of output more than doubled during the period.

The major developments have taken place in uranium, iron ore, nickel, copper, asbestos, crude petroleum and natural gas. Canada, at present, promises to be the greatest producer of uranium ore with Consolidated Denison believed to presently hold the largest tonnage of indicated uranium ore on the continent. Production from the new Quebec-Labrador iron ore deposits reached 8,500,000 tons in 1955 and an estimated 13.5 million tons in 1956. The deposits were brought into production following an expenditure of \$250 million and four years of almost unceasing effort. In northern Manitoba a large new nickel industry has taken shape. In the Gaspe Peninsula, a new copper deposit has recently come into production capable of turning out 125 tons of copper per day. Seventy million dollars is being spent on a further expansion of the asbestos production facilities in the eastern townships. One of the largest deposits of titanium ore is located in Quebec. While not yet profitable, this deposit has considerable promise as additional research on the reduction of ore to metal lowers the cost and expands the market. This property is controlled by Kennecott Copper and New Jersey Zinc.

NEW FRONTIERS

As the new areas further north are opened, the government is quick to lend a hand in building the necessary transportation. In this manner, vast new areas of opportunity are steadily opening up for the Canadian people and the mineral frontiers are being pushed steadily northward. Probably one of the greatest developments in Canada in recent years has been the finding of oil and gas. Excluding petroleum and natural gas, which I will discuss separately, the leading mineral item, both from a volume and dollar point of view, in 1955 was zinc. Second in volume was copper, third—lead and fourth—nickel. Silver and iron ore, gypsum and asbestos also contributed importantly. During periods of high world demand, the country is an important seller of these items to the world market. The

principal export market, however, is the United States. In the case of asbestos and nickel, in particular, the United States is a big buyer for the simple reason that very limited amounts of these minerals are found in the United States. Again, the provinces of Ontario, Quebec and British Columbia are the most important producing areas.

Canada has long been deficient as a steel producer and, as the country grows, this situation must be rectified and this is currently taking place. The principal steel companies in Canada are Algoma Steel and Steel of Canada. Both issues are regarded as good value, although yields are extremely low. Algoma is currently selling at \$113 and Steel of Canada at \$65 a share. Of the non-ferrous mining securities, Consolidated Mining and Smelting owns and operates the largest lead-zinc mine in Canada, located in British Columbia. This company is controlled by Canadian Pacific and concentrates on the western part of Canada. It is interesting to note that, although it is a strong company, nevertheless the stock has declined to its current level of \$26, where it yields 6.3%. There would appear relatively little risk in the situation at this level. This company can be purchased through ownership of Canadian Pacific Railway, which is currently selling at \$31 to yield 5.6%. While Canadian Pacific owns and operates many properties throughout Canada, including steamships, hotels and oil properties, it is saddled with the difficult situation of the railway end of the business in that its only competition is with the Canadian National, which is a government owned company.

Noranda Mines, Ltd., is the mining empire of eastern Canada, with a completely integrated operation largely centered around the mining, milling, smelting, refining and fabricating of copper. Due to declining copper prices in world markets, this stock has been in a declining trend and is currently available around \$50 a share, to yield 4%. We believe that this is a very high grade situation in the mining industry, with considerable long term growth, although the best time to buy it would probably be when copper prices show a tendency to level off. International Nickel, of course, is one of the outstanding issues in Canada, today, controlling the bulk of Canada's nickel deposits. Nickel at the moment is a very tight commodity, in strong demand throughout the world because of its characteristics of heat resistance, strength and corrosion resistance. Currently selling around \$100 a share, last year's dividend totaled \$3.75 a share and we would expect this year's to be around \$4, so that the yield is not too good, but long term prospects are excellent and the strength of the company cannot be questioned. Canada's leading aluminum stock, Aluminium, has a great deal of future growth ahead of it but its current price, around \$115, even though it is off from its high of \$150, still only yields 2.1% and it looks as though in the current year there will be an oversupply of aluminum which will probably deter investors from taking on additional investment in this stock at this time.

THE LEDUC OIL FIELD

One of the most significant developments in Canada's economic history took place in 1947 when the now famous LeDuc oil field was found in the central part of the prov-

ince of Alberta. Alberta is the province adjoining British Columbia. Since 1947 commercial oil production has been proven from a variety of geological formations and in various areas at various depths. By the end of 1955 it is estimated that 3.6 billion barrels of proven oil and natural gas liquids have been found in western Canada. Of this nearly 600 million barrels have been produced, which left a proven reserve of 3 billion barrels at the end of the period. Practically all this oil has been found in the past eight years, or at the rate of 500 million barrels annually. An additional reserve of 1.5 billion barrels of undeveloped, unproven oil has also been discovered. Despite the excellent showing to date, it is felt that the Canadian oil potential has hardly been scratched, for by the end of 1954 only one exploratory well had been drilled to each 151 square miles, compared with one well per 12 square miles in the prospective areas in the United States. The sedimentary basin, which is the potential oil bearing area, covers approximately 770,000 square miles of western Canada. Within this area discoveries have been made ranging over a distance of 1,300 miles—from Norman Wells field in the Northwest Territories in the north, to the United States border and the Alberta fields in the south—and from the foothills of the Rocky Mountains in British Columbia in the west, to Virden, Manitoba, in the east. Most of the presently proven reserves, just as in the mining areas, have been made in the most accessible areas, namely, south and central Alberta. Saskatchewan is coming up fast as the geologists learn more about the various structures in that area and the play for oil in Alberta is steadily moving northwest over into British Columbia and will gradually work up to the Northwest Territories. Actually, one well is scheduled to be drilled a few miles south of the Arctic Circle this spring in the province of Northwest Territories and in the same general formation which stretches over into Alaska, where several exploratory wells will be drilled this year.

In 1946 Canada's oil reserves were estimated at 76 million barrels and production was 20,000 barrels per day, or 10% of the country's daily oil requirements of 223,000 barrels. Its consumption was 6.6 barrels per capita, compared with 12.7 barrels in the United States, and there were approximately 450,000 oil heated homes and 1.6 million registered motor vehicles. By 1955 crude oil reserves had reached 3 billion barrels. Daily production was 353,000 barrels, or over 50% of consumption of 623,000 barrels per day. This equalled 14.6 barrels per capita, which compared with 18.4 barrels per capita in the United States. The fastest growing segment of oil consumption, oil heated homes, had risen to 1,656,000, and registered motor vehicles numbered 3.9 million. Canada's refining capacity is now about 700,000 barrels daily.

THE FUTURE

Now as to the future. It is reliably estimated that Canada's energy requirements will more than double and the demand for petroleum will triple from the 1955 requirements of 623,000 barrels per day to 1,753,000 barrels per day in 1980. The demand for Canadian crude will multiply six to eight times from the present 353,000 barrels per day

to between 2 million and 3 million barrels per day, with production of this magnitude dependent upon the further development of export markets. Oil reserves of 23 billion barrels may be found, of which 10 to 13 billion will have been produced by 1980, with 13 to 17 billion barrels remaining at that time. Investment of approximately \$20 billion will be required by the oil industry to achieve these results.

Nothing much has been said about natural gas, but probably 5 trillion cubic feet of gas has been discovered in Canada, with very little production to date because of the lack of gas pipelines. Presently the oil industry has an oil line as far as Toronto and one going west to Vancouver, British Columbia, on the western seaboard. Two gas lines are now being built, one to the western seaboard to hook up with gas lines into the United States at the border and another line is being constructed which ultimately will go east as far as Montreal. By November, 1957, the West-coast Transmission Co. will have completed its line to Vancouver and the United States border. The Trans Canada line going east will probably be completed as far as Winnipeg, Manitoba, late this year. So, for the first time in the latter part of this year, the gas producer will be shipping substantial quantities of gas, all of which will generate cash which, in turn, will accelerate the further development of the oil and gas fields in Canada. It has been reliably estimated that an increase of 512% in natural gas consumption will take place in the period 1955 through 1980, which on a percentage would be the largest gain of any fuel during the period. Therefore, it is my opinion that Canada's oil and gas industry should be one of the most rapidly growing segments of the Canadian economy and it follows that this is one of the areas of attraction for long term investment. This whole development will be accelerated by the strategic importance of Canada's reserves and the politically stable climate of the country. We are all cognizant of recent developments in the Middle East, which has undermined the confidence of investors in that area where the promise of future growth is enormous. But, beyond that, it should be pointed out that in 1955 United States' crude oil reserves amounted to only 30 billion barrels and 2.5 billion barrels were produced. Our current reserve position is, therefore, sufficient to last 12 years at the present rate of demand.

President Eisenhower's Materials Policy Commission indicates that the demand for oils in the United States could exceed 4 billion barrels by 1965, compared with 3 billion barrels in 1955, and by 1975 should reach the astounding figure of 5 billion barrels. These figures should be related to the fact that the United States has found it increasingly difficult to find new oil despite exploratory activity. Total annual discoveries, revisions, and extensions have averaged about 3 billion barrels annually. With the rate of current demand approaching a figure exceeding the rate of discoveries in any given year since 1945, with the exception of 1951, it is evident that the United States is heading towards a declining oil reserve at the rate of 1 billion barrels annually. This, of course, augurs well for the future United States' demand for Canadian oil. This is all further borne out by the evidence of trends now taking place in the oil industry whereby the major oil companies are stepping up

their exploratory activity in Canada to insure their long term reserve position there. It is also interesting to note that the large integrated Canadian units are controlled mostly by American corporations and in many instances these American corporations have of late increased their ownership of Canadian subsidiaries. Imperial Oil, the largest integrated unit in Canada, is controlled by Standard Oil of New Jersey. British American Oil is controlled by Gulf Oil, which has recently increased its control. McColl Frontenac is controlled by Texas Company. Secondly, much of the activity in the industry today is being conducted by such major companies as Amerada, Socony, Standard Oil of Indiana and Continental Oil. This leaves a handful of medium-sized Canadian independents who must either grow or sell out to somebody else. Heading this category appears to be Bailey Selburn Oil & Gas, Merrill Petroleum, Great Plains Development, Calgary & Edmonton, Home Oil, Royalite, Pacific Petroleum and Canadian Atlantic. Another completely different group is Canadian Superior of California, which is largely controlled by Superior Oil of California; Triad, controlled by British Petroleum; Hudson's Bay Oil & Gas, controlled by Hudson's Bay Co., and Continental Oil.

OILS AND OIL SHARES

The oils as a group have risen substantially in price in the last year and as a result may be entitled to a period of consolidation, which it appears they are now going through. The most interesting of these oil issues are: the leader, Imperial Oil; British American Oil and, among the independents, Bailey Selburn Oil & Gas and Calgary and Edmonton. Among the pipelines, Interprovincial Pipeline appears to be the most interesting. This company is the life's blood between the western oil fields and the eastern markets. It will be completed this year as far as Toronto and beyond that further long term expansion may be anticipated. The stock has been strong in recent sessions, reaching \$55 1/8 and is currently selling around \$52. The yield is low, but long term growth prospects appear favorable. Transmountain Pipeline, which carries crude petroleum to Vancouver from central Alberta, promises to offer considerable growth in that the west coast of the United States is a rapidly growing market for petroleum and petroleum products. This stock has had a very rapid rise in recent sessions. Its range has been 44 1/8-120 and it is currently selling around \$113. Westcoast Transmission is an interesting gas issue, available in units of \$100 par value of 5 1/2% subordinated debentures and 3 shares of common stock. Three shares of common stock are attached to the bonds. These three shares currently are worth approximately \$105. Trans Canada Pipe Line is a gas line which will carry gas from western Canada ultimately as far as Montreal. This will be financed on February 15 by the issuance of \$117 million in first mortgage bonds and \$120 million of debenture and equity financing to be divided \$80 million in debentures and \$40 million in common shares. In addition to the proposed offering of \$20 million subordinated convertible income debentures, which will be taken down by various companies associated with the venture, debentures will be offered at \$156 in the United

States. Yield will be 5.6% to American investors and the units will consist of \$100 in debentures and 5 shares of common stock priced at \$10. Three of the five common shares will be detachable on May 31, 1957, and there is a current market for the stock at \$20 a share. However, it is estimated that it may be 1960 or more before this company is earning as much as \$1-\$1.25 per share. It is indicated that the offering to the public, however, will be way over-subscribed, which would appear to insure successful completion of the line. If we look at all of these lines from a long-term point of view, and we believe in the long term growth of the Canadian oil and gas industry, they should work out well through the years.

The foregoing security selections have been based primarily on the long term outlook for Canada and on the premise that the strongest companies are likely to continue to benefit the most from the long term growth prospects. Within this framework, however, there are many junior companies which, while more speculative, offer very interesting appreciation potentials.

AN OPTIMISTIC NOTE

The economy of Canada in 1956 performed better than that of the United States and we believe this is likely to continue in 1957.

The year 1956 ended on an optimistic note. Industrial production, while showing a tendency to level off, continues well ahead of last year. Steel production and newsprint output has leveled off, but both are ahead of last year. Construction contracts continue ahead of a year ago, and, despite the fact that housing starts are 30% below last year and were 8% below the 1955 level, the over-all industrial production index continues well ahead of last year. Farm prices are showing a tendency to increase. Power consumption continues to run well ahead of last year, and automobile output ended the year approximately 50% ahead of last year's level. Employment continues at a peak. Flow of capital into Canada does not seem to be letting up, and both imports and exports are at a high level. Credit restrictions have been placed on the Canadian economy to almost a more stringent basis than in the United States. Within this pattern, as measured by the Montreal Industrial Stock average, it is down from a high of 332 in 1956 to around 290 at present. Stock market in Canada seems, therefore, to have had a reaction comparable to that of the New York stock market. Yields on government bonds are up to approximately 3½% and high grade common stocks yielding upwards of 5%. It would be my conclusion, therefore, that the prime growth issues in Canada are now approaching an attractive investment level.

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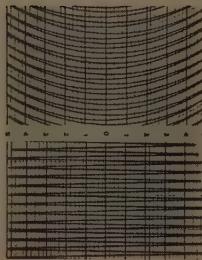


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JEREMY C. JENKS

ECONOMISTS, SECURITY ANALYSTS, and other students of business have become increasingly convinced that the forward thrust of research and advancing technology is a major reason for the great surge of growth we have been experiencing in our economy. Our nation's research effort is larger than is realized. In 1956 over \$5 billion was spent for research and development; of this about \$4 billion was spent by industry, the rest by the government, universities and other similar organizations. There are about 600,000 scientists and engineers employed by industry at the present time. Perhaps a hundred thousand more are pressing forward investigations in many scientific areas under the sponsorship of non-profit organizations and the government.

Almost every field of business activity is in some degree affected by the rapid advance of research and scientific developments. Obviously, the impact of new inventions may create economic values in one industry and destroy them in another. Accordingly, security analysts in recent years are spending an increasing amount of time in following scientific developments and attempting to forecast the impact on sales and earnings potentials.

THE FRAMEWORK FOR EVALUATION

Since 1929, Gross National Product has been increasing at about a 5% annual rate. Total goods and services have grown at a somewhat lower rate, about 4.8%, with the government expenditure component advancing at the more rapid rate of 9% annually. Non-durable consumer goods have shown a rate growth of about 4.8%, services about 4% and durable goods about 5.2%.

Corporate sales, as might be expected, are growing at a slightly more rapid rate than these measurements of the general economy—5.7%. Corporate profits before taxes have grown at a 5.8% rate, but after taxes at only a 4% rate, reflecting the fact that the government is now the senior partner in all our economic endeavors.

All of the foregoing are in terms of dollars and part of the apparent growth is actually the loss of purchasing power of the dollar. In terms of physical volume, the rate of growth of our economy is somewhat slower. The Federal Reserve Board Index of Industrial Production seems to be rising at an average annual rate of 3% and this is somewhat more than twice the rate of growth in the population, which is running at about 1.2%.

Before I proceed I should say that these growth rates depend upon a starting point and how a trend line is fitted to the actual figures. Some of you, using different starting points, may arrive at moderately higher or lower rates of growth.

FEW COMMODITIES HAVE CONSISTENT GROWTH PATTERNS

An examination of individual commodity statistics reveals that very few have a consistent pattern of growth. For

example, cement measured from 1929 has only shown a 2% growth rate in terms of physical volume. In recent years, however, the growth rate appears to be about 6%. The same thing is true of gypsum, where the long-term growth rate is about 3.5%, but in recent years it has been about 5%. A different pattern is presented in such products as refrigerators and washing machines. Refrigerators have shown a long-term growth rate of 6% annually but sales have actually declined in the last several years. Washing machines have shown a 5% annual rate of growth on a longer term basis but sales have been about level in the last few years.

Most statistics on individual products are based upon physical volume of production rather than on dollar values. Where it is possible, it is desirable to look at both factors, and it is usually the case that new products showing a very rapid rate of growth in physical volume are in a declining price trend and therefore sales values grow less rapidly. Older products where the rate of growth in volume is rather slow have probably been forced by rising costs to raise prices and, accordingly, in recent years dollar sales have shown an apparent growth rate above that of production statistics. Another problem is illustrated by the automobile industry, where unit volume has not grown very rapidly in the last 30 years but where the product has changed so much and has increased in price a good deal more sharply than the decline in value of the dollar. Here dollar sales have shown a tremendous growth but unit figures a rather moderate and irregular increase.

In the remainder of this review all the statistics quoted will be in terms of physical volume rather than dollars, except as specifically indicated. First, I would like to devote some time to discussing metals. There are a number of areas in the field of new metals that appear to us to have interesting long-range growth potential.

THE COST OF METALS

The growth prospects of a particular metal depend upon the special qualities of that metal and the cost of that metal compared with other materials. The metallurgist has been able, in many cases, to judiciously mix small quantities of the expensive metals with larger quantities of less expensive metals and achieve alloys with special usefulness and attractive from a cost point of view. It may be interesting to look at the historic rates of growth for a number of metals. The non-ferrous metals, particularly copper, lead and zinc, have been growing at an average annual rate of only about 2.2%. Iron and steel have been growing at a rate of 3.6%. Some of the newer metals are growing at a much more rapid rate. Aluminum has grown at a 9% annual rate. Production by 1975, as estimated by the Materials Policy Commission, will be about four times the level of 1950. Cobalt has been growing at a 12% annual rate and expectations are that 1975 will see four and a half times the production rate of 1950. Magnesium has grown in recent

*Given March 7, 1957

years at a 19% annual rate. The Materials Policy Commission report predicted a nineteen-fold increase in magnesium between 1950 and 1975. I am inclined to share this optimistic estimate on magnesium because the cost relationship of magnesium in comparison with other metals gives promise of changing substantially in the favor of magnesium. This results from some important technological break-throughs on new and better methods of producing, alloying and fabricating the metal.

TITANIUM

The most dramatic of all the new metals is titanium, where physical volume appears to be growing at a 90% annual rate. In other words, production is nearly doubling each year. Everyone thinks of titanium as a very new element. Actually, titanium was first produced in 1910, when General Electric and Titanium Alloy Manufacturing (the latter is now a division of National Lead) got together and developed a process of reducing titanium tetrachloride with sodium and produced metal of 99% purity. This is an excellent example of a product development that was way ahead of its time. Actually the requirements of our technology were at a stage where there was little need for a metal of the special properties of titanium. Other, cheaper metals were good enough for the rather modest strength, weight, temperature and corrosion requirements of those times.

The real history of titanium began in 1948 when about ten short tons of sponge were produced. By 1951 this had grown to 400 tons. In 1952 sponge production was 1,200 tons; in 1954 it was 5,200 tons; last year it was about 14,000 tons, and this year may be about 27,000 tons. It seems probable to us that in five to seven years the demand for titanium sponge could be on the order of 200,000 tons, and perhaps 1,000,000 tons by 1975, or even earlier. These estimates assume further substantial costs and price reductions in both titanium sponge and titanium mill products. The dollar figures for the value of titanium products produced might be about \$130 million for 1956; \$200 million for 1957; \$1 billion for 1965; and \$4 billion for 1975.

ATOMIC ENERGY BRINGS NEW MEASURES FOR METALS

The advent of atomic energy means that we are looking at the special qualities of metals in terms of a new dimension. Hitherto, we looked at metals in terms of their hardness, strength, resistance to corrosion, melting point, ability to conduct electricity or the magnetic characteristics. To these have been added somewhat esoteric nuclear characteristics, such as neutron cross-section, which in effect means what a metal does when a neutron is shot into it. For example, as we all know, when neutrons are shot into certain isotopes of uranium the nucleus breaks down, releasing large quantities of energy. When a neutron is shot into thorium, the thorium converts to a fissionable form of uranium. Beryllium has the characteristic of being able to pass neutrons through but slows them down, and also when beryllium is hit by other forms of radiation it has the characteristic of actually contributing additional neutrons. Boron, on the other hand, captures neutrons and slows

down nuclear reactions. Zirconium has some of the characteristics of beryllium, but zirconium has to be separated from hafnium, which commonly occurs with it, because hafnium has opposite characteristics from zirconium. And so it goes. Elements like germanium and silicon can do some very peculiar things in connection with electrons. Lithium and certain forms of hydrogen can be fused together under certain conditions and release tremendous amounts of energy.

The special nuclear characteristics of a metal apparently have a great deal more value than the physical characteristics of a metal. Five or ten cents a pound for an ordinary metal is a large price differential but some of these nuclear metals are coming into prominence at prices measured in dollars per pound rather than cents per pound.

ELECTRONICS

The electronics industry has shown a phenomenal rate of growth in recent years, having jumped from about \$1.4 billion in 1948 to perhaps over \$6 billion last year. Most of this growth was concentrated in the first five years of that period and since then there has been some evidence that the rate of growth is slowing down. We would guess that the electronics industry may have an average rate of growth of about 7% annually in the next few years. It is hard to generalize about this industry, however, because there are so many different products involved, with considerable variance in their individual growth prospects.

For ease of discussion the industry may be broken down into four major areas. The first might be called home entertainment and includes radio, television, record-players, etc. This segment has increased from about \$900 million sales in 1948 to \$1.4 billion, roughly, last year. Most of the growth was accounted for by television and there is definite evidence of a leveling off in recent years. The historic rate of growth probably means less in this industry than for most industries. The future will depend, to a considerable degree, on how fast color television is accepted. We would estimate a rate of growth in the future of something on the order of 5 or 6% but it will not occur in even annual amounts.

Military electronics is another segment of the industry which has shown a phenomenal growth. In 1948 military electronics is estimated to have accounted for only \$150 million of sales. By 1953 this had risen to about \$2.5 billion. Since then the rate of increase has leveled off and in recent years has averaged about 5%. Predictions as to where military electronics is going from here have varied from roughly no growth in the next few years to perhaps as high as 7 or 8%. We would be inclined to use the figure of around 3 or 4%, but world events could make this prediction very wrong. Actually, military expenditures are less predictable than almost any other major segment of our economy.

RADIO AND TELEVISION BROADCASTING

One of the most rapidly growing segments of the electronics industry is radio and television broadcasting. The rate of growth in recent years has averaged about 17%, and, while there may be some slowing down, a reasonable guess

might be 10% in the next few years. This industry has nearly reached the \$2 billion mark and might be three times that much in another ten years.

A catch-all group called industrial and commercial electronics includes a variety of dissimilar businesses, and it is in this area that we see some of the most attractive growth potential. Because it includes instrumentation, industrial controls, electronic business equipment for data processing and control mechanisms for machine tools and other purposes, generalization is difficult. Over all, the rate of growth in this field has been fairly rapid in recent years and should certainly grow at a 7 to 8% rate in the future. This could be a very conservative prediction, because some segments of the group are growing at a much more rapid rate than that. For example, the office equipment segment may very well increase at a 15% annual rate, and recently the increase has been more nearly 20%.

Electronic devices are now being manufactured which code information taken from ordinary accounting machines into a punched tape. The information on these tapes can in turn be transmitted over the teletype, can be used by punch-card machines, typewriters or other conventional accounting equipment, or can be fed into high-powered electronic computers for further processing.

Rarely has there been a better correlation of economic need and a new technology to serve that need. There are more than 13 million clerical employees in the United States and the cost of clerical work exceeds \$30 billion a year and is rising rapidly.

THE NEW FIELD CALLED NUCLEONICS

A new field closely related to electronics and atomic energy has been given the name *Nucleonics*. Nucleonics means the controlled use of one or another of the particles of which the atom is made. So far there are 20 different particles known and others are suspected. The electron is, of course, a particle of the atom and has every-day applications—in television, for example. To distinguish nucleonics from electronics, perhaps the qualification should be added that if the particle involved is an electron rather than a neutron or proton the energies involved must be very high. High-energy particles are being used on an experimental basis for a number of purposes, such as polymerization of polyethylene plastics, the conversion of ordinary silicon putty into a rubber-like material, and for triggering various types of chemical reactions. A great deal of work has been done on sterilization of foods, drugs and other products by the use of these nucleonic devices.

Closely related to electronics is a process known as electrical discharge machining. This is so new that it is hard to make predictions, but for sharpening tungsten carbide tools, for making dies, and for some other metal-working requirements, this is having a truly phenomenal success.

I have failed to discuss the electronic parts business. The reason is that these figures are pretty well buried in the other segments, as the parts industry, of course, sells to the other portions of the electronics industry. The parts industry does have a fine historic record of growth and will grow at the same general rate or probably more rapidly than the industry as a whole. Certain particular components, such as

transistors, are of course showing an extremely rapid growth rate and the full impact of these miniature devices on the electronics industry is still to come. It seems probable that entirely new products will be developed, just as television was new only about ten years ago, which will command a large market. For example, the electric wristwatch is now a reality.

THE RATE OF GROWTH IN THE CHEMICAL INDUSTRY

The chemical industry is still our number one growth industry by most standards. The rate of growth in chemicals as a whole has averaged 9% per year over a considerable period, or about three times the average rate of growth of the economy as a whole.

While some portions of the chemical industry have been showing evidence of slowing down, others have clearly defined and favorable prospects. Historically there is a considerable difference in the rate of growth between various segments of the chemical industry. Heavy inorganic chemicals, such as sulphuric acid, caustic soda, etc., have shown a 6% annual increase. Organic chemicals, including the coal derivatives and the newer petrochemicals, have shown a 10.3% rate of growth. Plastics, on the other hand, are growing at, at least, 15% annually. One authority says that while plastics production is only 5% of steel on a volume basis now, it may be 60% in twenty years.

In the plastics field there is a considerable variation in the rate of growth of individual products. Phenolics, one of the old-line workhorse plastic materials, has grown at about a 12% annual rate over the years. Polyethylene, which is a post-World War II development, has been showing a fantastic rate of growth, averaging about 50% annually, and seems destined to be the first one-billion-pound plastic. It should be mentioned, however, that construction plans for polyethylene may temporarily result in overcapacity and price reductions that could cause some disappointment for a number of producers.

Some mention of synthetic textiles should perhaps be made. The new synthetics, not including rayon, amounted to about 6% of the consumption of textiles in the United States in 1955. This was in terms of pounds. In terms of dollars, the new synthetics, heavily weighted by relatively high-priced nylon, probably took well over 10% of the textile dollar. Some of the newer acrylic fibres ran into temporary problems, but it is interesting that capacity for these wool-like synthetics is now being substantially expanded. A number of new fibers have been disclosed recently: du Pont's Teflon, American Cyanamid's Creslan, B. F. Goodrich's Darlan, among others.

The chemical industry as a whole showed a sales increase in 1955 of about 20% over 1954 and totaled about \$23 billion. The preliminary figure for 1956 is \$24.3 billion, a further gain of about 5.5%. In 1957 some increase is probable, although I doubt it will be sharp.

SOME INDUSTRIES AND THEIR GROWTH

While this talk is not going to discuss individual companies to any great degree, it is perhaps worth while to list the historic annual rate of sales growth for a few of the major companies. Du Pont and Union Carbide for many

years have gone along fairly close together at about a 9% annual increase. Allied has been a little lower than this, at about 8%; Dow has been the leader, averaging 16%, and Monsanto has averaged about 12%.

Another industry with interesting longer term growth prospects is the aircraft field. Few people realize it, but the aircraft industry is the second largest industry in terms of number of scientifically trained employees. It ranks only behind the electrical and electronics industry, and ahead of the chemical industry, which is in third place. While much of the impetus behind the rapid progress of our aircraft program has been military, the airline industry has been growing very fast and is in the market for substantial quantities of new equipment. The economics of the airline industry has been materially strengthened in recent years. It seems probable that the rapid rate of growth of the airlines will, in the future, be translated into earnings and dividends for the stockholders to a greater extent than in the past. One reason is that the new jet and turbo-prop equipment on order will generate more revenues in relation to investment than present equipment and operate at lower seat mile costs.

Among consumer goods industries that are benefiting substantially from technological progress are such fields as specialty food products and drugs. For example, a great deal of research work has gone into developing pre-cooked, heat-and-serve meals. The convenience foods industry appeals to us as an area with large growth potential. A number of developments in nutrition, for older people especially, are attracting attention.

In terms of pounds, food consumption in the United States is growing at only about 1% per year. In terms of dollars, however, personal consumption expenditures on food have been increasing at a 4.8% rate per year. Part of the difference is the changing price level, but that does not account for all of it. The larger part is related to the changing requirements of the consumer and the rising level of purchasing power which has upgraded our eating habits. It

is interesting that several companies concentrating on convenience food products are growing at annual rates between 6 and 9%, which is not much below the leading chemical companies.

The drug industry ran into special problems several years ago from which it is now emerging. Basically the unusually rapid product obsolescence and abnormal competition seem to have been reconciled. Sales of drug products at the manufacturers' level were about \$300 million in 1939, and now are about \$1.6 billion.

The most rapidly growing part of the drug field has been synthetic organic medicinals, which include antibiotics, vitamin preparations, hormones and similar products. In terms of dollar value the increase has been averaging about 18% annually. This compares with about a 5% growth factor for an older product such as aspirin.

THE PATH TO NEW SITUATIONS IS GRADUAL

The most painful experience that one is likely to find when investing in growth stocks stems from paying a substantial premium for future growth in earnings and then having the growth in earnings fail to develop. We usually try to work our way into a new situation gradually and based on actual earnings progress. This is especially true in the case of the smaller, younger companies where normal investment hazards are heightened by such factors as unproven management, lack of established markets, problems with manufacturing processes, need for new capital, etc.

I have mentioned quite a few different businesses or products that have promise for growth based upon current technological progress and economic needs. There are, of course, others. In some of these fields there are a number of companies available for investment, all of approximately equal attractiveness. In other cases, the fields are so new and so little developed that there is a lack of investment vehicles, and in many cases, of even reasonably seasoned speculative opportunities. I hope this will at least be helpful in stimulating your own further investigations.



CENTRAL AND SOUTH WEST CORPORATION COMMON STOCK DIVIDEND

The Board of Directors of Central and South West Corporation at its meeting held on July 10, 1957, declared a regular quarterly dividend of forty cents (40c) per share on the Corporation's Common Stock. This dividend is payable August 30, 1957, to stockholders of record July 31, 1957.

LEROY J. SCHEUERMAN
Secretary

CENTRAL AND SOUTH WEST CORPORATION
Wilmington, Delaware

CONSECUTIVE QUARTERLY DIVIDEND NO. 228

The board of directors of The Electric Storage Battery Company today declared a regular quarterly cash dividend of 50 cents a share on common stock outstanding, payable September 30, 1957 to stockholders of record September 6, 1957

E. J. DWYER
Vice-President & Secretary
August 7, 1957

 THE
ELECTRIC STORAGE BATTERY
COMPANY



SOCONY MOBIL OIL COMPANY INC.

Dividend No. 186

The Board of Directors on July 23, 1957 declared a quarterly dividend of 50¢ per share on the outstanding capital stock of this Company, payable September 10, 1957, to stockholders of record at the close of business August 2, 1957.

A. M. SHERWOOD, *Secretary*

**TO THOSE WHO DREAM
THE DREAMS THAT KEEP
AMERICA GREAT...**

Cities Service Dedicates Its Newest Research Laboratories

Cities Service believes it is altogether fitting that its splendid new research laboratories at Cranbury, New Jersey were dedicated to those who will use them so wisely and well.

Often unsung, sometimes unappreciated, the men of science in the industrial laboratories of the country are a national resource beyond the command of money.

They kindle the fires of imagination and keep them burning. They spark the constant development of new products and the continual improvement of established ones. Because of their dedication to the new and better, management can build, salesmen can sell, every business can grow in usefulness, and the public benefits.

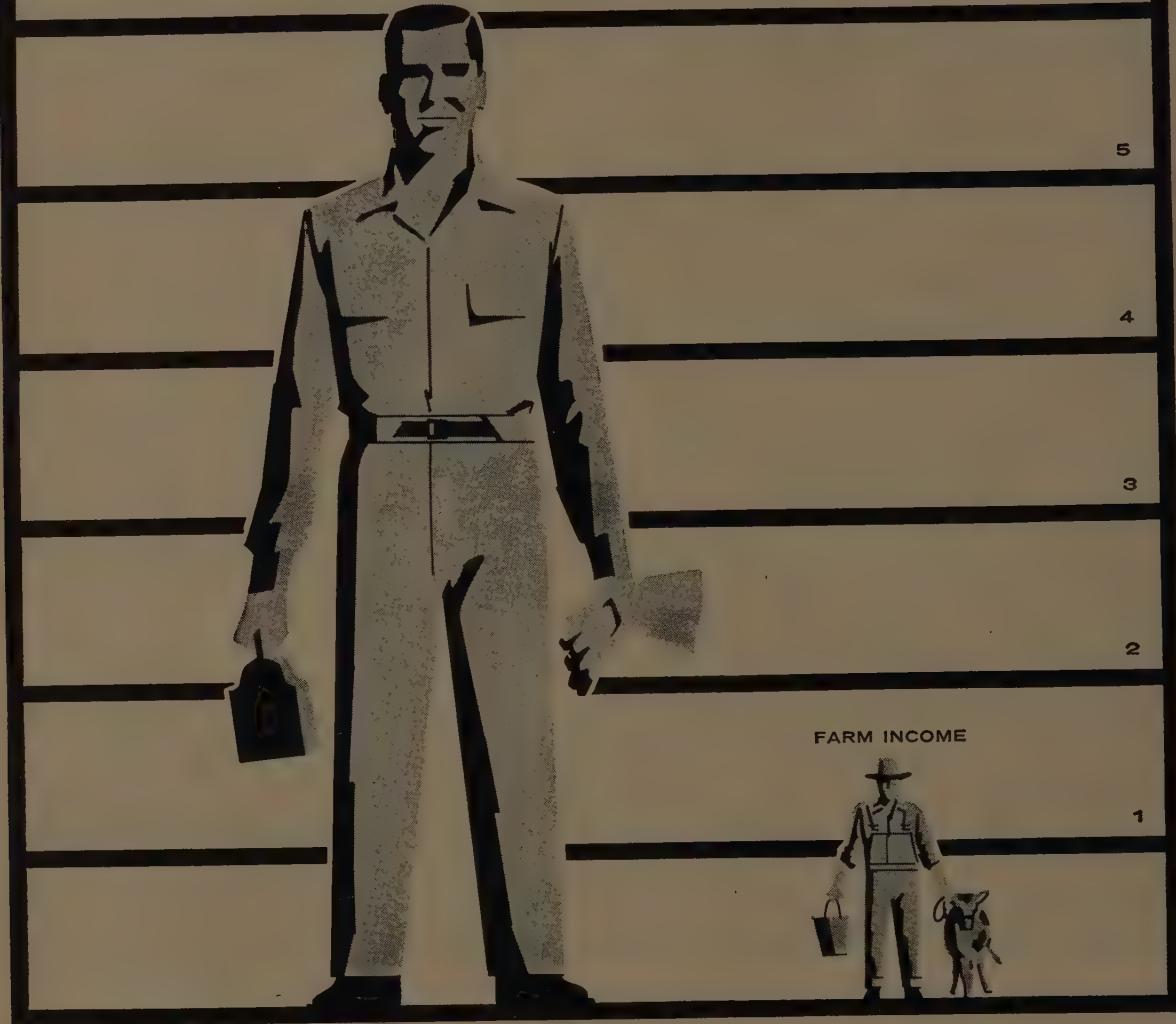


Joining four other great Cities Service laboratories, these newest facilities will provide the most advanced equipment for research in petroleum and allied fields. Included is a modern nuclear section for long-range research in the field of process development, fuels and lubricants—the heart of which is the largest concentration of irradiated cobalt ever to be supplied by the Atomic Energy Commission's Brookhaven National Laboratory.

Cities Service is proud, indeed, of its modern new laboratories and their advanced equipment . . . but takes far greater pride in the men who will man them. It's their dedication and skill that spark our growth and our service . . . for today and for tomorrow.



CITIES  SERVICE



Upper Midwest industry income four times farm income

In 1955 the wages and salaries of individuals involved in industrial and commercial work was 6 billion dollars or four times the net farm income for that year.

These figures illustrate how the Upper Midwest—once considered primarily an agricultural region—has developed its industrial and business potentials.

The business and industry of the area is characterized

by a sound and diversified economy less sensitive to market fluctuations than other parts of the country.

NSP has grown to keep pace with the Upper Midwest. For 23 years we have marked an increase in revenues every year—in 1956 reaching \$139 million.

Ask your secretary to write for our annual report (1956 report available after March 30, 1957).

NORTHERN STATES **NSP** POWER COMPANY
Minneapolis 2, Minnesota

Serving a thriving area in Minnesota, Wisconsin and the Dakotas with electricity and gas.

Opportunities in Life Insurance Stocks*

SHELBY CULLOM DAVIS

THE PRESENT OPPORTUNITY in life insurance stocks stems from three factors: (1) They are desirable long term growth investments. (2) They are attractively priced at 10-12 times estimated 1956 adjusted earnings. (3) They have undergone a price correction for 18 months which has carried many issues as much as 30 to 40% below their highs. Yet earnings this year will be at an all-time high and the fundamentals on which earnings rest (sales, improved mortality, high interest rates) appear favorable for the foreseeable future. The present opportunity exists largely because of market congestion.

LONG TERM GROWTH INVESTMENTS

There may be said to be three fundamental requirements for the ideal investment:

- (1) That the industry serves an essential need;
- (2) That it possesses above average growth; and
- (3) That it possesses sufficient stability both of sales and profit margins to render it relatively immune to short term or cyclical changes.

In the above respects life insurance stocks qualify as ideal investments.

(1) Life insurance serves an essential need, protection of self and loved ones against the hazards of life and death. No substitute for life insurance has ever been devised.

(2) It has above average growth, the aggregate amount of insurance in force having risen two and one-half times since the end of World War II, four times since 1935, eight times since 1922, 20 times since 1913, and nearly 50 times since 1900. During the next decade it will double, according to such experts as Devereux C. Josephs, chairman of New York Life.

(3) Because of its large volume of "repeat" business, life insurance possesses remarkable stability, even in depressions. Life insurance in force declined only 5% in 1932 compared with 1931, and 5% 1933 compared with 1932. Aside from these two years life insurance in force has advanced yearly since 1900. Life insurance protection is in effect rated, i.e., paid for each year in "repeat" payments. These annual payments lend stability to the business and make it virtually depression proof as to volume. Profit margins are not subject to wide fluctuations.

How are profits derived from the life insurance business? Largely from two sources:

- (1) Improved mortality (i.e., better than assumed) and
- (2) Higher interest earnings than assumed. Of these two sources, mortality is the more important.

Death and other claims generally average 2-3 times investment income. Improvements in mortality are felt more widely. They also are more significant since they affect

favorably all business on the books present and future, whereas higher interest rates affect only current new funds. Furthermore, mortality is in a long term uptrend while interest rates have fluctuated up and down.

At present the life insurance business appears favorably situated both as regards mortality improvement and higher interest earnings. A huge volume of business, approximately \$450 billion, has been placed on the companies' books since the war. Some of this has probably lapsed, so this represents probably 80-90% of the \$450 billion of life insurance currently on the books. Since this business has been placed on the books at low interest assumptions, it will no doubt "run off" the books years hence at satisfactory profit margins because of the higher interest rates than assumed and the better mortality than assumed. The fact that actuaries make the rates of selling prices of life insurance policies is a factor of safety. Actuaries have high professional standards, are by nature conservative, and must allow for many contingencies. With the pricing of policies in their hands, it seems certain that conservative pricing policies will be followed, and that there will always be an adequate margin of profit.

NO LABOR PROBLEMS

There are further desirable features about life insurance stocks as investment media. The business has no labor problem, no inventory problem, no overcapacity problem. Insurance expenses are small in relation to the premium dollar, the major expenses being claims and commissions which fluctuate with the acquisition of new business. The only "inventory" held by life insurance companies is in form of investments, such as mortgages, bonds, real estate, preferred stocks and some common stocks. While stocks are valued at market, they constitute only a very small portion of life insurance portfolios. Mortgages and almost all bonds are valued on an amortized basis so that the companies' assets do not fluctuate violently. And as for overcapacity, the problem does not exist. There is no impelling financial necessity of "keeping volume up" in slack times, such as exists in other industries with high overhead investments. There is, furthermore, the belief in the business that sales of life insurance are only limited by the number of salesmen; and that the market is definitely undersold.

THE DEATH RATE HAS DECLINED

The improving mortality trend in the United States can be illustrated in many ways. The expectation of life at birth has increased from 47.3 years in 1900 to more than 70 years today. Since 1944 the death rate has declined almost 22%. The long term improvement appears to be at the rate of at least 2% a year. This trend may be quickened by important and fundamental discoveries in the fields of cancer and heart disease, which are the two main "killers" for life insurance company policyholders. The bulk of policyholders are in the middle age group, aged

*Given February 14, 1957

Year	LIFE INSURANCE IN FORCE IN U.S. (In Billions of Dollars)					Ratio of Premiums to disp. Income	Total Income of Life Cos. (Millions)	Rate of Interest Earned on Investments
	Ordinary	Group	Industrial	Credit	Total			
1900	6		1		8	N.A.	N.A.	N.A.
1910	12		3		15	N.A.	836	N.A.
1920	32	2	7		41	N.A.	1,764	4.83
1929	76	9	17	.1	102	N.A.	4,337	5.05
1930	79	10	18	.1	106	N.A.	4,594	5.05
1931	80	10	18	.1	107	5.7%	4,850	4.93
1932	76	9	17	.1	102	7.2%	4,653	4.65
1933	71	9	17	.1	96	7.2%	4,622	4.25
1940	79	15	21	.4	116	5.1%	5,658	3.45
1950	149	48	33	4	234	3.5%	11,337	3.00
1951	159	54	35	5	253	3.4%	12,012	2.98
1952	171	63	36	6	277	3.5%	13,076	3.07
1953	185	73	38	9	304	3.6%	14,271	3.15
1954	198	86	39	10	334	3.7%	15,280	3.24
1955	217	101	40	15	372	3.8%	16,544	3.25

50-65. Success in determining the causes of heart disease and cancer and discovering positive methods for treating them would be of the greatest importance to life insurance companies, prolonging as it would the lives of their premium paying policyholders.

So much for the life insurance business, its essential character, its long term growth, its stability and depression-resistant qualities. Its profits are derived largely from improving mortality trends which in themselves are part and parcel of the broad social fabric of higher living standards, better nutrition, better hospitalization, new "wonder" drugs, etc. Thus in a sense life insurance companies are the beneficiaries of this broad social trend towards improving the lot of the masses. As the dominant factor in the long term capital market they are also in position to benefit from the higher interest rates not only today but in the foreseeable future on the huge quantities of business they have on low interest rate assumptions.

THE BASIS FOR TAXES

Life insurance companies, because of the peculiar long term character of their business, based, as it is, upon future mortality and interest assumptions, are taxed upon a different basis than other corporations. Only 15% of their net taxable investment income is taxed on the 52% corporate tax basis. Although hearings will be held by the House Ways and Means Committee and Senate Finance

in early 1957 on a permanent formula for taxing life companies, it is believed no significant change will result. For competitive reasons mutual and stock companies must be taxed alike. Mutual companies, representing 70% of life insurance assets, return profits to policyholders in the form of dividends which lower the cost of their life insurance. Lower cost life insurance is in the public interest. This reason, plus highly technical difficulties inherent in the problem, make unlikely any important changes in the life companies' tax situation.

A few figures will suffice on the life insurance business and then consideration will be given to recommended companies.

Year	Life Expectancy at Birth in the United States (Years)		Age	Expectation of Life at Various Ages		
	Life Expect. at Birth	Amer. Experience Mortality Table (1843-1858)		C.S.O. 1941 Mortality Table	Total U.S. Population 1954	
1900	47.3	0	41.5	62.3	69.6	
1910	50.0	20	42.2	46.5	52.4	
1920	54.1	40	28.2	29.3	33.8	
1930	59.7	45	24.5	25.2	29.4	
1940	62.9	50	20.9	21.4	25.2	
1950	68.4	55	17.4	17.8	21.3	
1954	69.6	60	14.1	14.5	17.7	
		65	11.1	11.6	14.4	
		70	8.5	9.0	11.6	

Distribution of Assets U. S. Life Insurance Companies

Year	U. S. Govt. Secs.	State & Local Bonds	Foreign Govt. Bonds	Railroad Bonds	Public Utility Bonds	Indus. & Misl. Bonds	Stocks	Mortgages	Real Estate	Policy Loans	Miscl.
1920	11%	5%	2%	24%	2%	1%	1%	33%	2%	12%	7%
1925	5	5	1	19	6	1	1	42	2	13	5
1930	2	5	1	16	9	2	3	40	3	15	5
1935	12	7	1	11	9	3	3	23	9	15	7
1940	19	8	1	9	14	5	2	19	7	10	6
1945	46	2	2	7	12	4	2	15	2	4	4
1950	21	2	2	5	17	15	3	25	2	4	4
1953	13	3	1	5	16	20	3	30	3	4	4
1954	11	3	1	5	16	20	4	31	3	4	4
1955	10	3	1	4	16	20	4	33	3	4	4

Priced at 10-12 times 1956 adjusted earnings, life insurance stocks now appear attractive on a capital growth and compounding basis. Because of the small dividends, this annual compounding is at the rate of 7-9%, which exceeds most other growth securities.

	Adjusted Earnings 1955 E 1956	Indicated Annual Dividend	Current Market	Plow* Back as % of Market
Conn. General	\$20.23	\$23.	\$1.80	250
Lincoln National	18.73	20.	1.75	223
National L. & A.	7.23	8.	0.60	89
Commonwealth	2.18	2.30	0.20	20
Colonial	10.82	12.	1.00	102
Life of Virginia	8.97	10.	2.40	110
Continental Assur.	7.00	8.	1.20	117
Franklin	4.42	5.50	0.50	82
U. S. Life	1.70	2.00	0.10	29
Gulf	2.20	2.50	0.50	30
Travelers	7.42	6.00	1.00	74
Aetna Life	16.45	14.00	3.40	179
				6

It will be noted that the fastest growing companies, such as Continental Assurance, Franklin, U. S. Life, had the smallest percentage of plowbacks, which is entirely natural and similar to I.B.M. and other great growth stocks in the industrial field. The annual rate of growth, for the past four years, of the above companies follows:

% Increase—Insurance in Force

	1955	1954	1953	1952
Connecticut General	17%	12%	15%	16%
Lincoln National	8	9	9	9
National Life & Accident	9	8	12	12
Continental Assurance	21	22	19	19
Travelers	11	9	12	11
Aetna Life	13	11	14	12
Franklin	15	15	*18	19
U. S. Life	19	39	*24	—4
Gulf	12	13	7	9
Commonwealth	12	12	16	13
Colonial	12	11	13	12
Life of Virginia	12	10	9	6

*Gives effect to business reinsured during prior year.

PRICE CORRECTION

The price correction which the life stocks have undergone during the past 14 months has been extensive, from 40% to 18%, and averaging 30% for 12 life stocks, as the table below shows. At their lows the correction was 38%. The lows have been reached in two periods, April and early October of 1956. The market action of the life stocks was particularly impressive early in February of this year as they approached their previous lows. Selling volume dried up, and even though the general market declined, in the life market, buyers, long term bargain hunters, began to more than counterbalance sellers. Since the fundamentals of the life business have been so good this year, we have felt the market itself had to tell the story as to when the life stocks could be bought again. The action of the market seemed to give this message in early October.

	1955 High	1956 Low	Current	% Decline From High
Conn. General	320	220	250	22%
Lincoln National	283	195	223	21
National Life & Acc.	108	82	89	18
Continental Assur.	174	105	117	33
Travelers	124	62	74	40
Aetna Life	295	156	179	39
Franklin	106	74	82	23
U. S. Life	45	26	29	36
Gulf	40	27	30	25
Commonwealth	28	18	20	29
Colonial	155	90	102	34
Life of Virginia	168	92	110	35

While current high interest rates might seem to harm low dividend payers such as the life stocks, actually high interest rates are highly beneficial to the companies themselves. Since they have already undergone extensive price corrections for 14 months, they would seemingly be less vulnerable than other low yielding growth stocks. And since the fundamentals of the life business are excellent and promise to continue so for 1957 and the foreseeable future, life insurance stocks appear to be an attractive long term investment medium at the present time.



INTERNATIONAL HARVESTER COMPANY

The Directors of International Harvester Company have declared quarterly dividend No. 156 of one dollar and seventy-five cents (\$1.75) per share on the preferred stock payable Sept. 3, 1957, to stockholders of record at the close of business on August 5, 1957.

GERARD J. EGER, Secretary

PUGET SOUND POWER & LIGHT COMPANY Common Stock Dividend No. 56

The Board of Directors has declared a dividend of 34c per share on Common Stock of Puget Sound Power & Light Company, payable August 15, 1957, to stockholders of record at the close of business July 17, 1957.

FRANK McLAUGHLIN
President

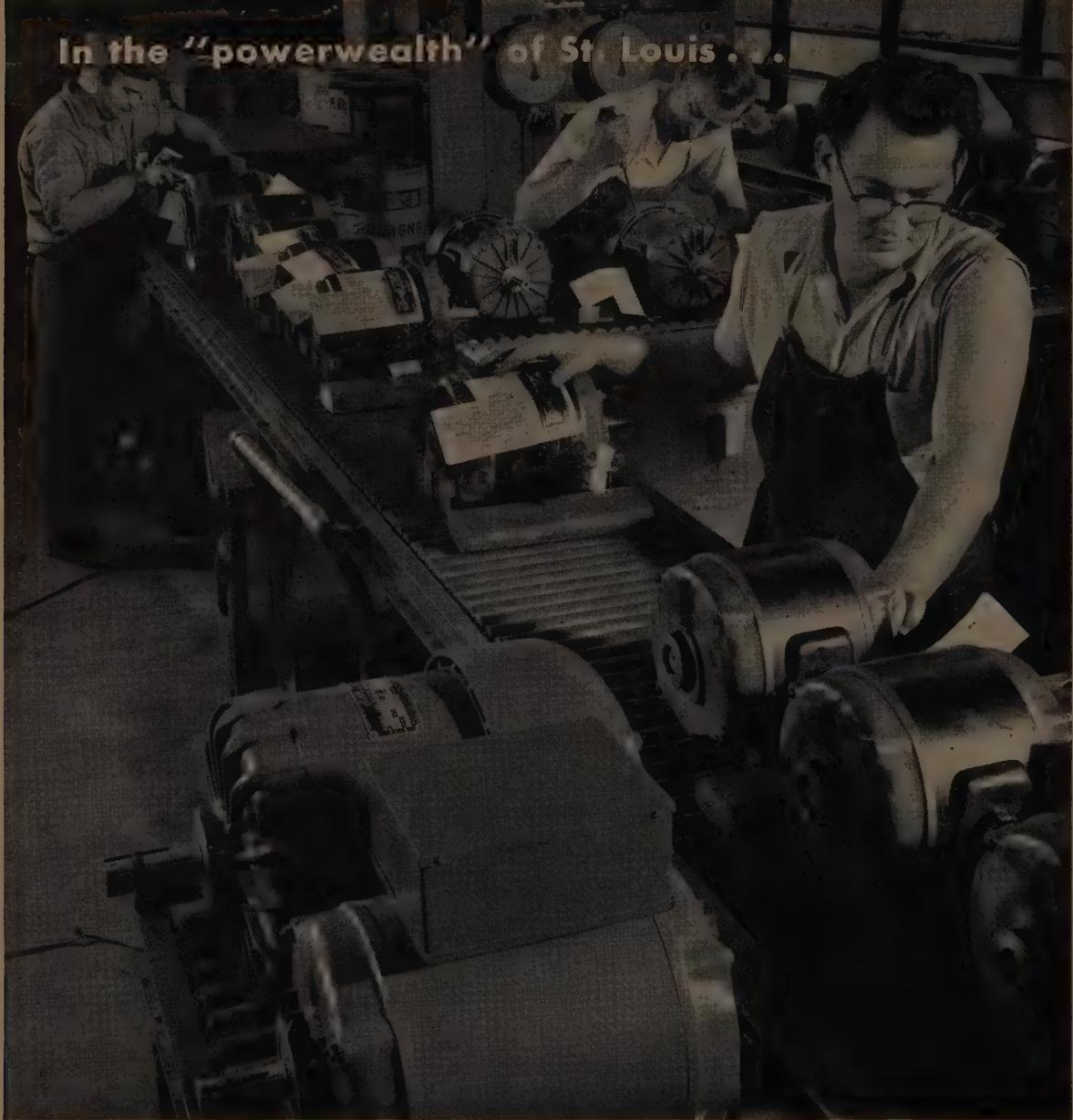
The American Metal Company, Limited

COMMON STOCK
Dividend No. 127

The Board of Directors has declared a dividend of Thirty cents (30¢) per share on the Common Stock payable September 3, 1957 to stockholders of record at the close of business on August 21, 1957.

D. J. DONAHUE,
Treasurer.

In the "powerwealth" of St. Louis . . .



St. Louis has become one of the nation's leading producers of electrical machinery, with annual sales in excess of \$200 million.

Union Electric produces enough power to serve the whole U. S. electrical machinery industry

Total production of Union Electric in 1956: 7.4 billion kilowatt hours. Average annual power consumption of the U. S. electrical machinery industry: 6.1 billion kilowatt hours.

To serve its growing Midwestern area, Union Electric is constantly increasing its production to keep ahead of the thriving industries it supplies. Today's power production is so great it could meet the needs of whole segments of America's economy, such as the electrical machinery industry. Even more capacity is in the building stage to keep pace with to-

morrow's requirements for dependable, low-cost power.

Within the last ten years, many new industries have located here. Among them: aircraft, soap, special metals.

We invite you to investigate the "powerwealth" of St. Louis as a location for your business. Write to J. E. Johanson, Industrial Development Engineer, 315 N. 12th Blvd., St. Louis 1, Missouri. UNION ELECTRIC, comprising: Union Electric Company, Missouri Power & Light Co., Missouri Edison Co.

**PAST, PRESENT AND FUTURE—
HOW UNION ELECTRIC HAS
GROWN AND IS GROWING:**

5 YEARS AGO—In 1951, Union Electric produced 5.25 billion kilowatt hours.

TODAY—Union Electric produces 7.4 billion kilowatt hours, an increase of 40%.

LOOKING AHEAD—Construction under way or planned will increase capacity another 29% by 1960.

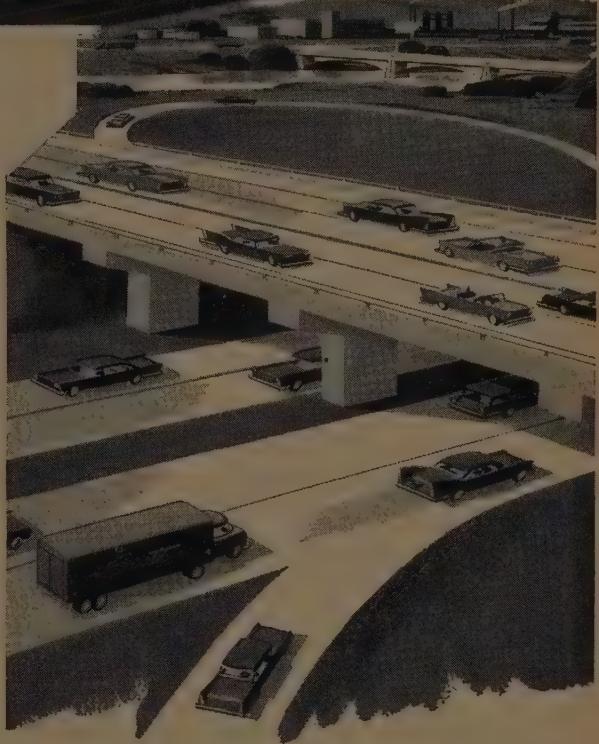
CREDIT..

EXPRESSWAY OF OUR AMAZING AMERICA

New York to Chicago without a stop light! As the modern expressway has created new dimensions in automotive travel, so consumer Credit has opened new dimensions in our buying power. For modern Credit is the "financial expressway" that keeps money moving, flowing, circulating... our nation selling, building, buying... resulting in a constantly increasing standard of living unmatched in the world today!

For 38 years Associates has been helping to build this vital artery of our expanding economy. Its creative financing policies have long been a key factor in the phenomenal growth of the automotive industry... within the last year Associates provided over 1 1/4 billion dollars for retail automobile purchases and wholesale financing. In addition, Associates annually supplies hundreds of millions of dollars to help develop American industry and hundreds of millions more to individuals for family needs.

With assets over 900 million dollars, Associates is one of America's great financial institutions... contributing to the expansion of the nation's "financial expressway" for greater progress and achievement in the future.



A REPORT FOR THE FIRST SIX MONTHS

CONDENSED CONSOLIDATED BALANCE SHEETS

ASSETS	June 30, 1957	June 30, 1956	LIABILITIES	June 30, 1957	June 30, 1956
CASH AND MARKETABLE SECURITIES..	\$ 87,369,416	\$ 87,277,327	NOTES PAYABLE, short-term	\$455,829,819	\$435,831,400
RECEIVABLES:			TERM NOTES due within one year..	14,707,000	37,500,000
Retail motor vehicle installment receivables.....	\$713,932,341	\$683,877,863	CAPITAL DEBENTURES due within one year.....	1,600,000	—
Wholesale motor vehicle short-term loans.....	95,848,295	72,754,696	COMMON STOCK DIVIDEND payable July 2, 1957	2,086,807	1,875,283
Direct and personal installment loans.....	69,419,360	55,851,875	ACCOUNTS PAYABLE, ACCRUALS AND RESERVES	33,088,139	30,237,643
Commercial and other receivables.....	41,403,438	37,002,943	UNEARNED INSURANCE PREMIUMS	28,972,657	29,258,942
Less: Unearned discounts.....	58,071,228	51,967,540	LONG-TERM NOTES	216,080,000	155,965,000
Reserve for losses.....	23,160,118	20,628,756	SUBORDINATED LONG-TERM NOTES	48,700,000	52,000,000
Total receivables, net.....	\$839,372,088	\$776,891,081	CAPITAL DEBENTURES	16,300,000	17,900,000
OTHER ASSETS.....	23,154,342	14,884,154	PREFERRED STOCK	20,250,000	22,500,000
	\$949,895,846	\$879,052,562	COMMON STOCK	32,104,720	31,254,720
			SURPLUS	80,176,704	64,729,574
				\$949,895,846	\$879,052,562

CONDENSED CONSOLIDATED INCOME STATEMENTS

	Six Months Ended	
	June 30, 1957	June 30, 1956
Discount, interest, premiums and other income	\$64,309,386	\$59,449,847
Operating expenses	46,109,920	41,828,871
Net income before Federal income tax	\$18,199,466	\$17,620,976
Provision for Federal income tax	8,040,000	7,840,000
Net income	\$10,159,466	\$9,780,976
Consolidated net earnings per share of common stock after payment of preferred dividends.....	\$3.01	\$2.97



ASSOCIATES INVESTMENT COMPANY
ASSOCIATES DISCOUNT CORPORATION
and Other Subsidiaries
HOME OFFICE • SOUTH BEND, INDIANA

Book Reviews

BUSINESS FORECASTING IN PRACTICE

edited by

Adolph G. Abramson and
and Russell H. Mack
John Wiley & Sons, Inc., 276 pp, \$6.50

Investment policies rest on correct business forecasting. Which factors can influence correct predicting and how much weight they have is more easily estimated if signals are correctly evaluated. This symposium sketches the extent to which existing studies may be utilized and the reasoning by which decisions can be reached. The particular subjects are discussed by authorities in each field, who indicate how conclusions are attained.

An important tool of forecasting is the business cycle theory. In it prospective profits are of outstanding importance and their rise and fall during peaks and troughs of business activity should cast their shadow before them. Mr. Mack gives an outstanding portrayal of the cycle that does justice to Wesley Mitchell's concepts. Set forth concisely, it should be carefully studied by all investors. Phases and processes of the cycle are traced. Results of the phenomena of expansion and contraction of future profits and the extent of their possible altering of projections and forecasts are presented.

The twenty-one key statistical indicators noted in the National Bureau's contributions on this subject ought be examined and kept in the memories of investors who are interested in trends.

The role of psychological hypothesis as reasons for financial predictions is becoming increasingly useful. Another causal factor of cyclical oscillations lies in monetary values. Changes in the supply of bank credit, or the cost of borrowing can affect business prosperity. Consumer spending has its sphere of influence in generating price moves.

Adolph C. Abramson considers forecasting estimates of possible reasons for various fluctuations. His techniques for forecasting comprise movements of statistical measures of economic activities. His "predictive lead series" include a "causal basis." This can change, for a lead series may not be lasting and can be taken over by another. Yet there are constant dominant influences with favorable and unfavorable impacts. Expectations in long-term forecasts are beautifully portrayed, and should be helpful to

In this department are summarized books, articles, and documents of outstanding economic or financial interest.

Helen Slade is the author of the book reviews. She will cooperate with members of the Society desiring source material for JOURNAL articles and for research projects and studies.

analysts who like to buy and sell with the tide. Joseph Hubbard finds that "it pays to re-examine the whole gamut of the forecasts once one of the important items has changed or threatens to change."

Stein Rose & Farnham have a business review done by Kenneth D. Ross. He brings to this volume the techniques of his review which he says his firm uses for "fundamental decisions." Among other things it surveys interest rates, corporate profits, dividends and building, all in their broadest sense. The tables are interesting.

Donald Watson of the General Electric Company has a case study which is illuminating. William Tongue indicates that a general forecast can have value as "a background for numerous other specific studies and observations affecting the company." The department store chapter done by Myron Silbert will be important for analysts in that field. There is an article called "An Analysis of the Business Outlook" by Wilson Wright covering 1948-49. Studies of past forecasts are often of value for they permit comparisons and appraisals.

Without fear of being overly enthusiastic this is a book few can afford to overlook.

COMPARATIVE ECONOMIC DEVELOPMENT

Ralph H. Blodgett and
Donald L. Kemmerer
McGraw-Hill Book Co., 557 pp, \$6

It is too bad that this wide-scoped and excellent study has a textbook bias for some readers may think it too elementary. This is not the case for the volume can serve as a background for any student of world economics.

Descriptions of Capitalism, the Welfare State, Socialism, and Fascism take a large portion of space. Full historical studies of the United States, Great Britain, Russia, and Germany are used to portray these developments. Because investments are so greatly influenced by the results of foreign evolution this "academic pioneering" should be followed.

The United States with a population of 165 million persons covers 6 per cent of the land area of the world. In the early days of the country's life nearly all Americans were farmers. Today the United States is largely a manufacturing nation. Farm income comes for the most part from commercial farming.

The transportation industry has prospered despite regulations. Railroads have grown in importance, so have busses and airplanes, automobiles and pipelines. Since 1900 the expansion of industry has been tremendous. Factories are constantly expanding with a significant share of the investment by workers. The salient points of how vast a sum of money has been accumulated through American energy are given. Savings, wise investments, and high standard of living have brought a plentiful supply of capital.

"The United States is one of the largest free trade areas in the world." Duties on some imported goods are the American way of erecting trade barriers without any recourse to devices used by other nations. Although some government regulations exist individual enterprise and competition will doubtless continue in the U.S.

Great Britain has 50.8 million people. Seventy-eight per cent are urban and British agriculture is now conducted by minority farmers. Government assistance sustains output. British transportation and communication systems are mostly government owned, and all her industries are growing more regulated. Should the industrial production of this welfare state become more regulated it could have an influence on world-wide production, for England is an importer of automobiles, chemicals, machinery and other American products.

Soviet Russia's government dominates her economic living. Labor productivity is not high, foreign trade has not developed. There have been "many serious economic problems."

Germans have worked and saved and are becoming more and more like the capitalistic system of the United States.

Possible changes as well as the actual workings of these four types of economic being are evaluated and fully compared. Understanding that which is and what can be, may throw a light on industries whose well being can be reflected in foreign needs and whose profits feel the weight of demand.

INTERNATIONAL ECONOMICS

H. Austin Peck

Thomas Y. Crowell Co., 461 pp, \$6.50

Because nations do not produce like goods nor have identical resources exchanges have made the enjoyment of materials necessary for their well-being. Factors of production vary. Distribution of goods differs, some countries have a scant supply, others a great abundance. The United States is fortunate not only in its natural resources but also in its highly skilled labor force. Yet there are some supplies they must import.

The large possible American output created by workers at high pay is sometimes encroached on by foreign goods. This in our earliest days led to protective tariffs. These tariffs have not only influenced our manufactured goods but in many instances altered the trend of the entire list of security prices; and at other times curtailed the profits of corporations. A tariff may cause domestic prices to be altered; by its workings, savings, consumption, and foreign relations can be changed. The book clarifies such problems. It also tells of the manner in which international payments are made. Means of determining the exchange rates, and the functions of the International Monetary Fund are set forth. The way in which it has stabilized rates; and systems for resolving exchanges will be understood by even the novice.

International trade theories arise from principles against which "empirical data can be tested." They include factors from which the volume of production is decided, such as demand and supply, gains or losses resulting from trade, etc. This plus the influence on exchange rates and the attending impacts arising from different monetary policies can completely alter the trend of business and corporation programs. All of which can shift the future of an industry and may even change a growth stock into a lost hope.

The chapter covering the "gold standard" will certainly set readers more rigidly in their own way of thinking which is always an excellent idea. This fine rendering of a controversial question should encourage sound thinking. As will the consideration of money arrangements, convertibility, and the true adequacy of reserves.

Private investment has been the dominant element of international lending. It extends to the operations of cartels. Many of the activities are secret so the magnitude of their operations are difficult to estimate. This combined with other governmental operations is fully described, and one becomes aware of the impact such activity may have on corporations. Wise investors will give these factors full weight.

Just how much foreign technical assistance can cut into the domestic production can be weighed. Moreover, the question then arises is it desirable from both an economic and political point of view? Many countries lean heavily on the United States for financial guidance which makes American decisions color world commerce. How much this can bend one way or the other without unexpected upsettings of the economy is a query the correct answer to which should throw a light on investment choices.

This book contains an unusually good bibliography.

THE LABOR POLICY OF THE FREE SOCIETY

Sylvester Petro

The Ronald Press, 339 pp, \$5.00

Mr. Petro is professor of law at the New York University of Law. He gives a dispassionate account of the merits and improprieties of unions as they now operate. He is not against unionism yet introduces a type of thinking little known to the average person, for he shows how all kinds of endeavor and collective action should be governed by identical laws. The author thinks that "Today, the progress of civilization requires that unions, with their capacity for good, be brought fully within the family of constructive, law abiding citizens." And that the legal institutions applying to most people should regulate all activity.

Labor unions have been legal for over a hundred years and to them has a general better living been in a great

measure due. The well run union contributes to general well being, they with their capacity for good should be brought within the "the family of constructive law abiding citizens." They must have the right to strike. The trouble is that a badly run union can continue the strike for long periods and then settle for the employer's original offer. At times coercive, they can bring considerable hardship, which serves merely to divert attention from the errors of union officers in general judgment.

One must recognize political pressure within the union may force leaders to make demands equal to those of other unions. These requirements can put "union leaders in an impossible position." It creates a tendency to set one union against others. Each top official is urged to constantly seek pay increases.

The fate of Russian unions has made the American leaders as a whole determined to keep a free market. The role of the union lies in a free market.

In 1930 there were only 4,000,000 union members in the United States. The spread in membership has not alone contributed to labor's share in the national income. It is well aided by the fact that we have "enjoyed as unassailable constitutional principles, free trade, private property, and freedom of contract."

Wages of workers are about two-thirds of the cost of production. Raising wages would increase costs and yet make no notable result within our economy, although the effect on our national trade might be fatal. Increased good living must come from more goods.

Labor relations suffer from a dearth of laws. "There is, properly speaking, no law of labor relations today." As we now operate, two things are seen "deviousness and an unutterable confusion." There appears to be a desirability of making a place for the state courts to enforce a national labor policy. How these laws may best operate to serve all purposes, to permit the functioning of a free market and to halt long interruptions of enterprise is analyzed by the author. He examines the existing relations and suggests improvements. His unemotional considerations are easily followed.

Calling the attention of readers to "The Labor Policy of a Free Society" is the suggestion of one of our members. May we have more requests?



UNITED FRUIT
COMPANY
233rd

**Consecutive
Quarterly Dividend**

A dividend of seventy-five cents per share on the capital stock of this Company has been declared, payable October 15, 1957, to shareholders of record Sept. 6, 1957.

EMERY N. LEONARD
Secretary and Treasurer
Boston, Mass., August 19, 1957



GENERAL
PORTLAND
CEMENT
COMPANY

**COMMON
STOCK
DIVIDEND**

The Board of Directors of General Portland Cement Company has this day declared a quarterly dividend upon its Common Stock of 45 cents per share, payable September 30, 1957 to stockholders of record at the close of business on September 13, 1957. The stock transfer books will remain open.

HOWARD MILLER,
Treasurer

August 15, 1957



DIVIDEND NOTICE

**Gulf States
Utilities Company**

Beaumont, Texas

The Board of Directors has declared the following quarterly dividends, each payable September 15, 1957 to Stockholders of record August 22, 1957.

Class of Stock	Dividend Per Share
PREFERRED:	
\$4.40 Dividend	\$1.10
\$4.50 Dividend	\$1.12½
\$4.40 Dividend, 1949 Series	\$1.10
\$4.20 Dividend	\$1.05
\$4.44 Dividend	\$1.11
COMMON	
	\$0.40

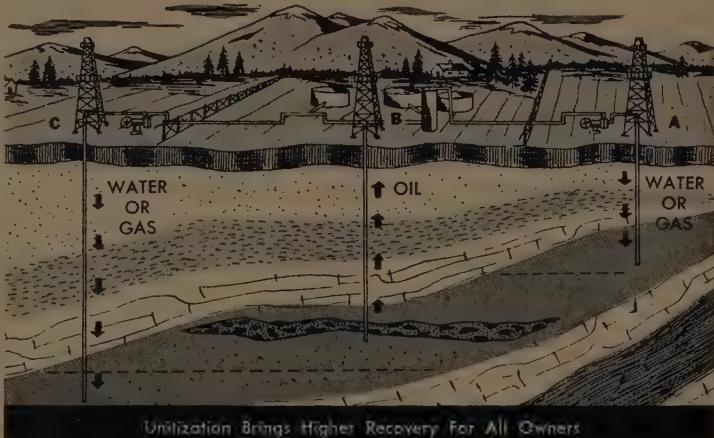
W. H. GIESEKE,
Vice Pres. & Secretary

**FRIENDLY COMPETITION
INCREASES OIL PRODUCTION**

THE OIL BUSINESS is highly competitive. From the scramble for good oil leases to selling gasoline on the corner, oil companies never let up in the competitive battle.

WHEN OIL WAS EASIER TO FIND some oil companies drilled fast, pumped oil until production went down, then moved to another location where new wells were flowing. Consequently, much good oil was left in the ground under the old wells because it was just too much trouble and too expensive to get it out.

FINALLY OIL BECAME MORE DIFFICULT TO FIND. Deeper wells were drilled at ever-increasing costs. It was then that new ways were found to squeeze more oil from many of the old wells — this is conservation.



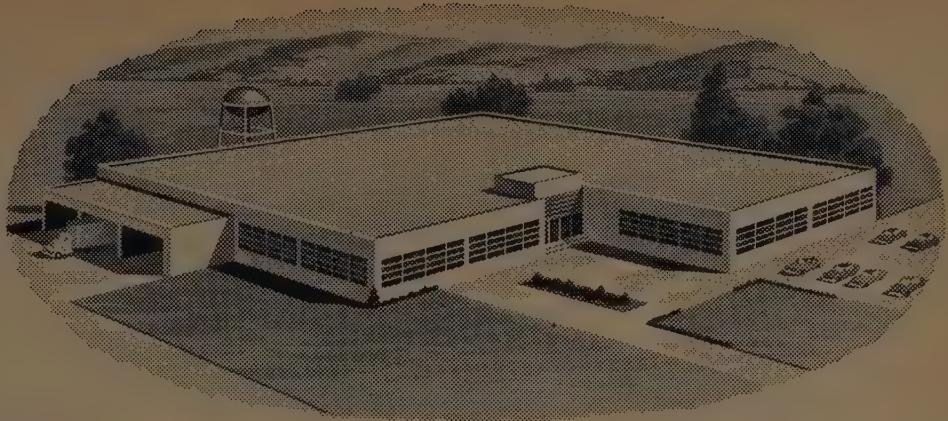
Unitization Brings Higher Recovery For All Owners

NEW PRODUCING METHODS GOT RESULTS. However, it is often desirable to drill new wells near the old ones so water or gas can be forced into the formation, thereby pushing oil up the pipe to the top of the original well. Drilling these extra wells costs a great deal of money. So, it was decided to make arrangements to use other nearby wells, already drilled by competing companies, for gas or water injection. This cooperative venture is called "unitization."

THIS YEAR Sunray will participate in from 20 to 25 new unitization projects. This means that the Company should add more than 20 million barrels of oil to its reserves. The new oil will be produced for the benefit of all America in a continuing conservation effort of which the oil industry is proud.

D-X is the brand name of quality products manufactured by D-X Sunray Oil Company, a wholly-owned subsidiary





PLANTS LOCALLY FINANCED PRODUCTIVE LABOR



*Reprint
of
current ad
used in
West Penn
Electric's
successful
drive for
new
diversified
industries.*

Manufacturers in and near the small cities and towns we serve often have their choice of the best workers there as factory jobs are frequently the preferred jobs in these communities. Skilled and semi-skilled workers, both men and women, are available. Our surveys show where the required numbers and skills can be recruited.

Some plants are available now—a few

are real bargains—or a new plant may be built to meet your needs. Low-cost local financing can be arranged in many cases.

For new facts on *ready-to-occupy* buildings in our 29,000 square mile service area in Maryland, Pennsylvania, West Virginia, Virginia and Ohio, call our Area Development Department—WHitehall 4-3740, or mail coupon below.

West Penn Electric System

Monongahela Power Company

The Potomac Edison Company

West Penn Power Company



WEST PENN ELECTRIC SYSTEM, ROOM 901
50 BROAD STREET, NEW YORK 4, N. Y. E

Without obligation, please send me information about available buildings and sites, and the assistance offered by you and the communities in your service area.

Name and Title.....

Firm.....

Address.....

City..... Zone..... State.....

Johns-Manville

Corporation

DIVIDEND



The Board of Directors declared a quarterly dividend of 50c per share on the Common Stock payable September 13, 1957, to holders of record September 3, 1957.

ROGER HACKNEY, Treasurer

Pullman Incorporated

360th Dividend and 91st Consecutive Year of Quarterly Cash Dividends

A regular quarterly dividend of seventy-five cents (75¢) per share will be paid on September 14, 1957, to stockholders of record August 23, 1957.

CHAMP CARRY
President



PHARMACEUTICAL PRODUCTS FOR
THE MEDICAL PROFESSION SINCE 1888



Laboratories

The Board of Directors has declared the following quarterly dividends, payable October 1, 1957, to stockholders of record September 5, 1957.

- 45 cents a share on Common Stock.
- \$1.00 a share on Preferred Stock.

113TH
CONSECUTIVE
DIVIDEND



August 21, 1957 / North Chicago, Illinois

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At mid-year 1957

A REPORT ON RECORD SIX-MONTH EARNINGS



Highlights from the Semi-Annual Report

for the year ended June 30	1957	1956
Volume of business.....	\$156,470,557	\$145,481,449
Loans outstanding.....	\$203,503,675	\$181,443,679
Gross income.....	\$ 23,253,132	\$ 20,937,032
Net earnings.....	\$ 3,418,514	\$ 3,108,840
Earnings per common share...	\$.70	\$.63
Number of common shares....	4,575,823	4,546,693
Number of subsidiary offices...	413	382

Earnings of American Investment Company reached a new high for any six-month period in company history in the first half of our 40th anniversary year. Total loan volume developed by our lending subsidiaries set a record for any first-half period. Receivables outstanding were at an all time high as of June 30. It is noteworthy that earnings of 70 cents a share were achieved in the face of increased interest rates on money which the company borrows to do business. Total net earnings for 1957 are expected to exceed \$1.40 a share.

On August 1 a new wholly-owned subsidiary, Public Life Insurance Co., began operations as a credit life insurance company, marking the entry of American Investment directly into this field. We anticipate that this subsidiary will contribute substantially to income in future years.

A copy of our 1957 semi-annual report is available on request.

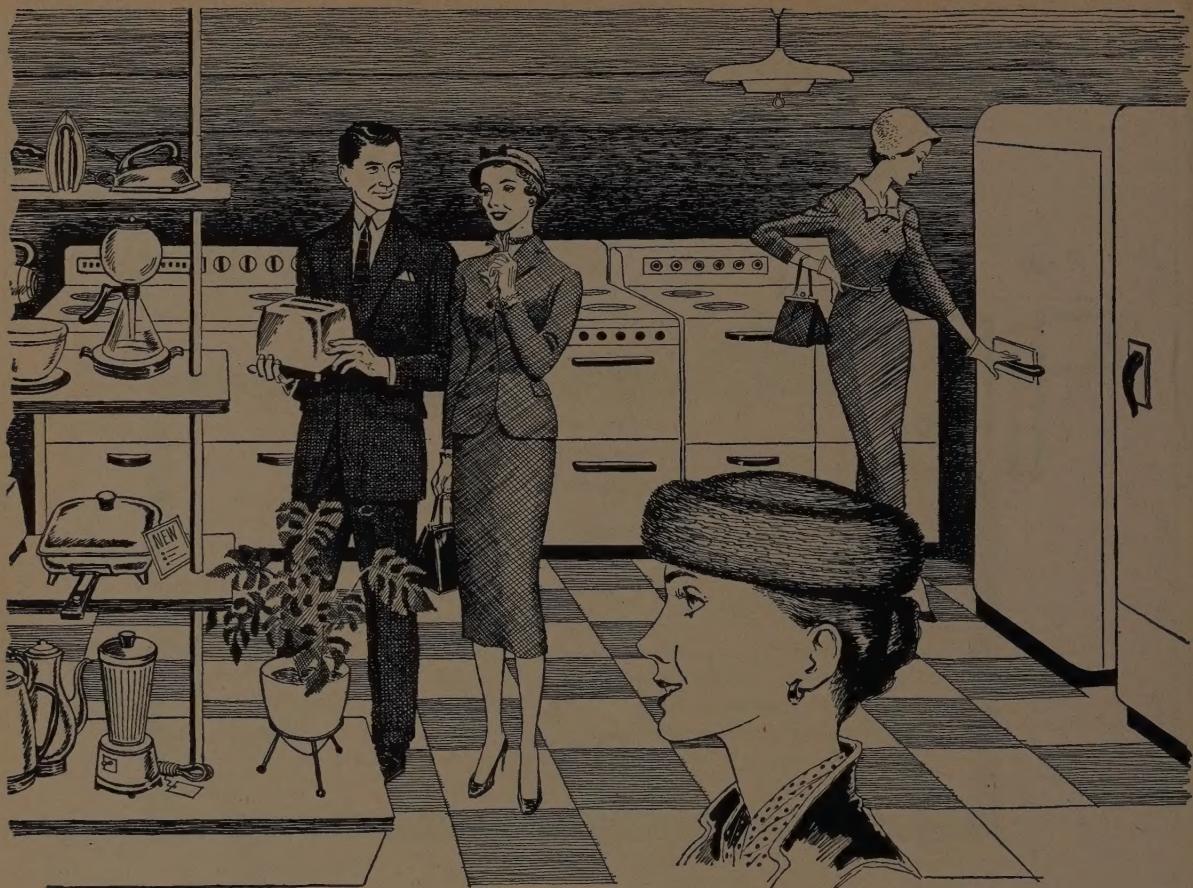


American Investment Company OF ILLINOIS

8251 MARYLAND AVENUE • ST. LOUIS 24, MISSOURI

Principal Subsidiaries:

Public Finance Corp., Public Loan Corp., Domestic Finance Corp., General Public Loan Corp.



How Glidden is growing with the 8.8 billion dollar sales of appliances

To help sell appliances of all kinds, to help make them perform better and longer, is a responsibility of suppliers such as The Glidden Company.

Consider the part now played by protective coatings. The Glidden Company is a leading supplier of gleaming finishes in an infinite range of colors, both to protect and beautify exterior surfaces of appliances. In addition, Glidden supplies polyester resins and other ingredient materials for plastic cabinets and parts.

Pigments, that make today's array of colors possible, also come from Glidden. So do metal powders from which manufacturers now mold a myriad of

precision parts, such as oil-less bearings, to help appliances run smoothly.

Rubber, that seals appliances tight, is compounded with pine tar derivatives made by Glidden. And plastics, for handles on irons and knobs for TV sets, are improved through the use of Glidden soybean derivatives.

These are but a few examples of the way The Glidden Company serves the huge appliance industry. And they are typical of the way Glidden grows through helping improve products, develop new ones, or reduce costs for the growth industries Glidden serves. The Glidden Company, Cleveland 14, Ohio.

Growing with the  *horizons of chemistry*

PAINTS

For Consumers; Product Finishes;
Industrial Maintenance; All Surfaces

CHEMICALS - PIGMENTS - METALS

Pigments and Metal Powders
for Industry

SOUTHERN CHEMICAL

Naval Stores;
Terpene Chemicals; Resins

CHEMURGY

Soybean Derivatives;
Grain Merchandising

DURKEE FAMOUS FOODS

For Food Processors;
Restaurants; Consumers



A welder joins sections of pipe line which will carry Barinas crude to market. Unlike practice in this country, in Venezuela pipe line is left above ground.

Making History in Venezuela

Deep in the heart of Venezuela, Sinclair's persistence in the search for oil is reaping its reward. That nation's most remote oil field, the Barinas field, will soon send its first oil to market. The volume will about double the crude output of Sinclair's subsidiary, Venezuelan Petroleum Company.

For almost 30 years, Sinclair scoured the Barinas Basin. Its first well in '31 was dry, but exploration continued. Four years ago a wildcat well found oil. Subsequent wells did, too — enough oil to make practical the longest pipe line yet built in Venezuela. Now near completion, this large-diameter line is being built in conjunction with another com-

pany and runs 212 miles from Barinas to historic Puerto Cabello on the Caribbean.

The Barinas field is an important addition to the growing list of U. S., Canadian and Venezuelan fields brought to life under Sinclair's expanded crude production program.

SINCLAIR

A Great Name in Oil

A Better Way to MOVE THINGS... faster, at least cost

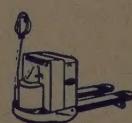
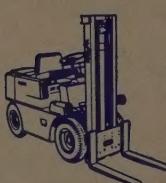
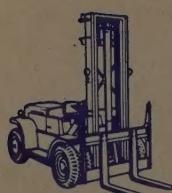
**CLARK®
EQUIPMENT**

Biggest bite of our industry's gross dollar is the greedy chunk taken by the cost of moving things—moving mountains of raw materials, mountains of goods in process and finished, mountains of earth on vast construction projects.

To cut that cost of moving things is the business of Clark Equipment. On the spreading web of highways, ton-mile costs are shrunk by the durable efficiency of Clark automotive components. In factories and warehouses, materials move faster, more cheaply—lifted and carried by Clark

fork trucks, Clark-Ross Carriers, Clark PowrWorker hand trucks. On huge construction projects, Contractors find Michigan tractor-shovels, excavator cranes and turbo-dozers their most effective weapons against climbing costs.

Truly, this enormous area of "moving things" is the richest lode of high-grade ore for cost-savings prospectors. And equally true, to find that pay-dirt it is, as always, good business to do business with **CLARK EQUIPMENT**



Clark-Ross and Michigan are registered trade-marks of

CLARK EQUIPMENT COMPANY
Buchanan, Battle Creek,
Benton Harbor,
Jackson, Michigan
St. Thomas, Ontario, Canada